

OUR NEW YEAR'S WISH

WE WISH YOU ALL-ambitious Carpenters, Contractors and Builders everywhere—a Prosperous and a Happy New Year.

May 1912 be the best year you have ever had-and may you find the American Carpenter and Builder more and more valuable to you as the months go by.

If you are strong on New Year's resolutions, here is one we recommend to you; for good results we positively guarantee its effectiveness:

"I, as a wide-awake builder who wants to keep up-to-date and who does not care to be left behind, do now resolve that I will immediately develop a more inquiring turn of mind and become a well posted man on all things pertaining to building;

I will study the announcements made each month in the advertising pages of the American Carpenter and Builder by the leading manufacturers of tools and machinery, building materials and equipment, and will write to these concerns and investigate their

I will study up and keep informed concerning both building materials and methods, so that I may become known as a builder who knows his business;

"I will stand for Better Building in my commun-ity, so that I may build up for myself a permanent reputation for good, satisfactory work."

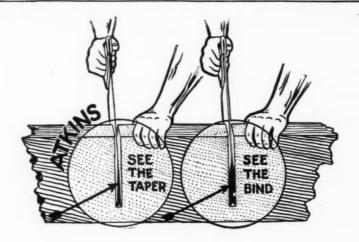
During the past two months an astonishing number of new subscribers have enrolled themselves under the banner of the American Carpenter and Builder. We welcome you all into the Big Family. We want you to feel at home. The American Carpenter and Builder is YOUR paper—the Editorial Staff is at YOUR service—the Advertisers are YOUR friends.

Here's for mutual Assistance and Success throughout 1912.

Sincerely,

AMERICAN CARPENTER AND BUILDER

EDITOR-IN-CHIEF



See the Point?

The Atkins saw cuts no wider path, but the blade has more "elbow-room." Doesn't stick in the wood. Runs easy and cuts fast.

Silver Steel

There's a big difference between the Atkins "taper-ground" saw and the ordinary "thin-back" saw.

A little bevel along the back may make it look thin, but that doesn't fool the lumber.

Of course, a little bevel is better than nothing.

But look at the picture and see how much better the "taper-ground" Atkins is.

The Atkins blade tapers all the way from tooth-edge to back. The tooth edge is the thickest part of the blade, with almost no set necessary on the teeth.

So the tooth edge cuts quickly, and the rest of the blade follows through the board without a struggle

The very first time you try an Atkins, you'll notice how fast and easy it cuts.

Don't think it's because the saw is new, for it will always cut just as rapidly, and yet will require less sharpening than any other make of saw in your kit.

The Best Steel Ever Used in Saws

Silver steel is the finest crucible steel the world has ever known. The formula for it was originated by E. C. Atkins over 50 years ago, for use in Atkins Saws.

Scientific analysis shows that Silver Steel is better steel than is used in most of the high-grade razors.

When gas-tempered by the Atkins secret process, this blade takes on a temper that has never been equaled. It is rigid enough, yet flexible enough. When bent by a crooked thrust, the blade springs right back into perfect shape.

It's a peculiar steel. Seldom rusts. Stands more hard usage and holds its edge longer (some carpenters say four times longer) than any other saw, needs less filing, and yet actually files more easily

The Atkins Perfection Handle is another big advantage. One carpenter writes, "It takes the strain off the wrist, and I fully believe gives one-third more cutting power." But we will give you the old-style handle, if you prefer.

Test This Saw at Our Risk

If the Atkins saw is what we claim, it's worth something to you to get acquainted.

It doesn't cost you a cent to find out. Simply stop in at your dealer's, select an Atkins Silver Steel Saw, take it with you to your work and give it a good fair test.

If it doesn't lessen the work and save both time and strength, if it isn't the very best saw you ever put through a board, take it back

to your dealer and get your money back.

No red tape about that guarantee. It's the plainest, strongest guarantee ever put behind a saw.

BE SURE the blade says "Silver Steel"—that's our best saw. Remember, too, that it isn't a genuine guaranteed Atkins Saw unless it bears our name.

FREE to Carpenters

We have sent thousands of our strong Nail Aprons free to carpenters—write today for your package, containing the nail apron, our Carpenter's Time Book, and "Saw Sense," a booklet of handy information for carpenters. Write for these, and lets get acquainted. Enclose 10 cents (stamps) to cover postage, and address our Carpenter's Department.

E. C. Atkins & Co., Inc, Indianapolis, Ind.

Largest Exclusive Saw Manufacturers in the World.

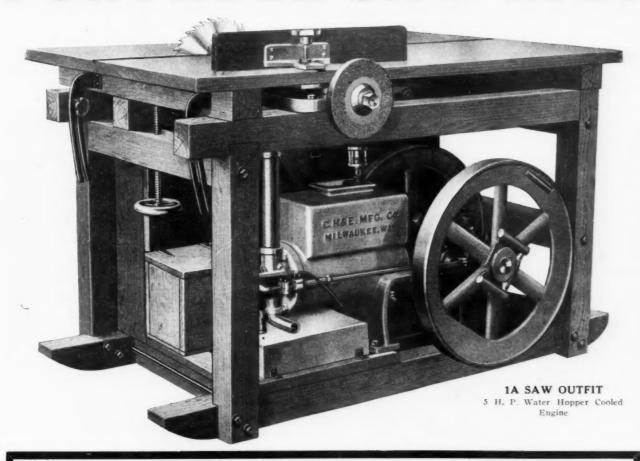
If your dealer doesn't handle Atkins Saws, or hasn't the particular saw you wish, ask him to order it for you from his wholesale house. He should be glad to do this—it's no trouble—and he will do it promptly if you make the request. If he is slow about it, write us direct and give us his name. We'll see that you are easily taken care of.

WE ARE THE

PIONEERS

In the Manufacture of

PORTABLE SAW RIGS



ORE C. H. & E. Portable Saw Rigs now on the market than all our competitors combined. Our descriptive folders will help you solve the problem in comparing the expense of operating our Portable Saw Rigs at twenty cents a day as against the high wages which you pay your men. We are manufacturers of Contractors' Equipment and make Portable Saw Rigs in four different sizes, as well as a Builders' Hoist, Material Elevator, Hand Derrick, Centrifugal Pumping Outfit, Power Driven Trench Pump, Concrete Chute, Column Clamp, Mortar Mixer, Gravel Heater, etc.

WRITE FOR OUR ATTRACTIVE FOLDER FOR OUR ATTRACTIVE PRICE

C. H. & E. Manufacturing Co., Inc.

322 - Mineral Street : : : : : Milwaukee, Wis.

The American Floor Surfacing Machine

IS NO EXPERIMENT. Its work since 1903 has established a standard for finely surfaced and polished soors. It is the only machine whose work is specified by leading architects and used in the best government buildings and will surface and polish any kind of a floor from common pine to the finest parquetry.

IT IS THE ORIGINAL and only two-roll, self propelled, dust collecting machine, that surfaces close

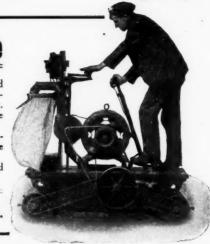
to the wall and can be used in small rooms. Anyone can operate it.

ITS WORK IS RAPID, regular smooth and even because the power that drives the rolls, also propells the machine at the same ratio of speed. It has surfaced and polished millions of square feet of the est floors in America and Europe.

GET A MACHINE that does first class work and in paying quantities, that is fully guaranteed and

sold on its merits. Don't be fooled with an imitation.

Write for Our Free Book, "Surfacing Floors as a Business." Manufactured By The American Floor Surfacing Machine Co., TOLEDO, O.



We Make Panels of any Thickness and Any Kind of Wood - Curved or Flat.

Ceiling Mantels Doors

Counter Tons Cabinets

Shelving

Our products excel in Quality and Durability, be-cause we concentrate our best efforts in their manufacture.

We specialize in Panels and have the facilities for producing best results.

Try us with your next order. Send us your specifi-cations and ask for our prices.

AMERICAN VENEER CO.

Specialists and Manufacturers of Built-up Veneer Panels

We appreciate small orders as well as large ones

12 Market St.,

KENILWORTH, N. J

CARPENTERS

In these days of close competition need the best possible equipment, and this they can have in

Barnes' Hand and Foot **Power Machinery**

Our new foot and hand power Circular Saw No. 4, the strongest, most powerful and in every way the best machine of its kind ever made. For ripping, cross cut-ting, boring and grooving.

SEND FOR OUR NEW CATALOGUE

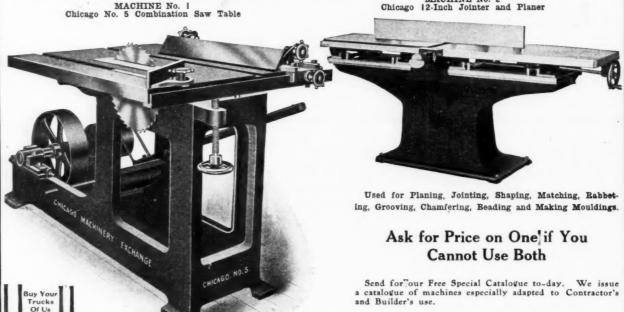
W. F. & John Barnes Co. ROCKFORD, ILL



These Two Machines for \$170.00

including belt for saw arbor, countershafts, 1 12" rip saw, 1 12" cut-off saw, 5 boring bits-1", 15", 3", 1", 3" and 1-inch pair of jointer knives.

MACHINE No. 2 Chicago 12-Inch Jointer and Planer

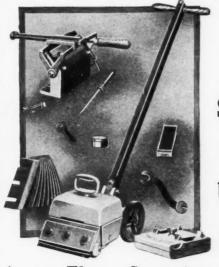


Used for Cutting Off, Ripping, Mitering, Grooving, Boring, Tenoning, Etc.

THEY ARE ALWAYS READY FOR WORK (Not so with the Universal Wood Workers.)

CHICAGO MACHINERY EXCHANGE, 1219-1227 W. Washington Blvd., CHICAGO, ILL.

OVER \$100,000.00



been
SAVED
by
USERS
of the

Has

Acme Floor Scraping Outfit

during the past five years. Thousands of machines are now in daily operation, and every mail brings letters from users commenting upon the satisfactory work their outfits are doing and the vast amount of labor expense they are saving.

Now, Mr. Contractor, you do not have to rely upon what I say regarding the merits of my machines, but I want you to let me send an outfit to you on one week's free trial, and you can then let the machine demonstrate on your own work just what they can do. If, after working with the equipment for one week, you are not convinced that the same will save you many dollars, and do your floor scraping better than it was ever done before, just pack up the machines, return them to me, and you will owe me nothing.

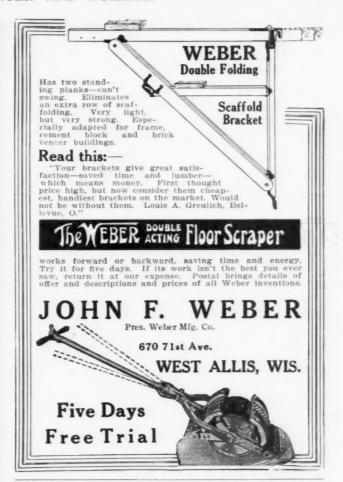
Write to-day for booklet and full details of my proposition.



is another labor saving tool. It is absolutely accurate, can be set at any angle and fits in the pocket where it is always ready for instant use. If your dealer does not carry them in stock, then write to me for circular describing this wonderful little tool.

JOSEPH MIOTKE

247 Lake Street : : Milwaukee, Wis.



Do Your Next Job of Floor Scraping at Our Expense with a

Little Giant Floor Scraper

Sold only on its merits. A request brings it to your door, freight prepaid. Try it out, if you are convinced it is the best floor scraper on the market, pay for it. If not, return it at our expense.

The Little Giant has scraped millions of square feet of floors. Cuts right up to the baseboard and into every corner. Easy to operate. Will scrape floors quicker, cleaner, and cheaper than any other machine on the market.

Hurley Machine Company

Ask us

for our

special

price on

this machine.

31 S. Clinton St CHICAGO

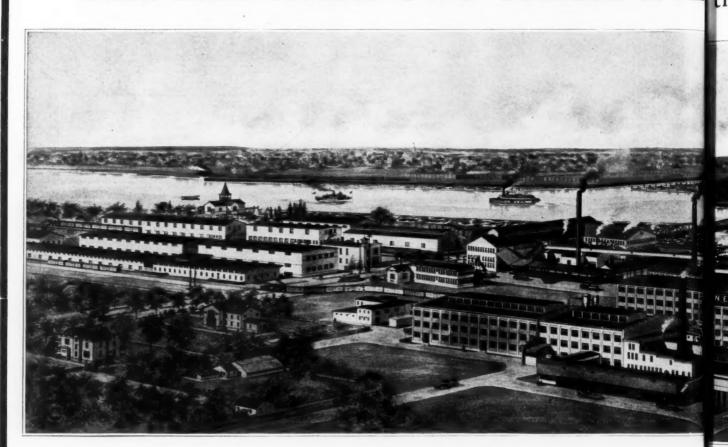
NEW YORK: 1011 Flatiron Bldg. DETROIT: 246 Woodward Avenue.



PAINE LUMBER CO., LTD.

OSHKOSH, WISCONSIN, U. S. A.

These Plants Produce TWO THIRDS of All the



We Make Everything in Mill W

OUR SPECIALTY

Korelock Veneered Doors

Cost but little more than Pine

WRITE FOR CATALOGUE A

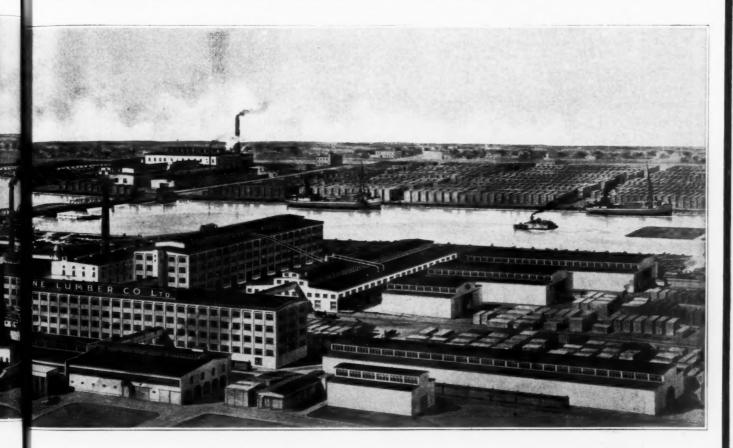
Whenever you See a Korelock Joint Think of

TD.

PAINE LUMBER CO., LTD.

OSHKOSH, WISCONSIN, U. S. A.

of All the Standard Veneered Doors Used in the World



MillWork in any Kind of Wood

OUR SPECIALTY

Korelock Veneered Doors

Birch and Oak Doors Ready to Ship

WRITE FOR CATALOGUE A

Think of Paine Lumber Co.—The Originators

Everybody Satisfied! =

OT a saw rig back, nor one unsatisfied user since the first one put out! That's because the Oshkosh is made on the correct principle, and saves the contractor big money on every job—from a five-room dwelling to a public school. If this were not a fact, we could not guarantee it for life.

OSE SAW RIG

Guaranteed for Life

No matter how long you use the Oshkosh, if any part proves defective in material or workmanship, we will replace it free of charge.

Now don't think the Oshkosh is just for the "big contracts." You can use it on any job. It's on skids and can be easily pulled anywhere. It saws and rips not only straight lumber, but also does a lot of so-called "hand work," such as cutting stair joists, etc. Besides that you can do innumerable other jobs with these free attachments:—12-in. Jig Saw, Boring Device, 10-in. Pat. Sanding Disc, 2½-in. Pat. Jointer, 6½-in. Dado Head, 6-in. Emery Wheel, Miter Device, and Pat. Rip and Bevel Gauge—ten in all with one rip and one cross-cut saw.

The Oshkosh is furnished with the best engine we could buy. It requires no experience to operate it and a gallon of gasoline will last many hours. The power is ample for any sawing purpose—in fact, it's a sturdy power plant you can't afford not to own.

If Not Satisfactory, Return it at Our Expense





This illustration shows the Master Slide Rule in use for inside measurements. The Master Slide Rule shows exact dimensions without figuring or calculations as indicated with pencil. No guess work.

Carpenters, Builders, and Every Kind of Mechanic!

USE THE MASTER SLIDE RULE

The only practical rule for inside measuring of doors, windows, etc. Will become absolutely indispensable after once using it. For speedy operation no other rule can compete with the MASTER SLIDE RULE. Can be extended and closed instantly. When opened, is kept in place by strong steel springs and cannot get out of order. One side of rule is marked for inside measurement. Reverse side of rule is the same as any ordinary rule, but is particularly valuable for quick measurement of ceilings and walls, etc. Made in lengths from 2 to 6 ft.

Ask your hardware dealer, or write us for particulars and price list. Send name of hardware dealer. Agents wanted.

Send 15e per lineal ft. for 4, 5, or 6 ft. rule, which will be sent you prepaid. Remittance by money order or cash preferred.

Dahl Manufacturing Co., Childs Bldg., 1 E. 42nd St., New York

ARCHITECTS—CONTRACTORS and BUILDERS

Write for our New Catalog No. 6 containing 180 pages, which fully illustrates and describes our Complete Line of Architectural Sheet Metal Building Material. Estimates furnished from plans and specifications.

WILLIS MANUFACTURING CO.,

Galesburg, III.

CORNICES, STORE FRONTS, STEEL CEILINGS CRESTINGS FINIALS, ETC.

Only Manufacturers of the FAMOUS Willis Skylights, Ventilators, Fire-Proof Windows and Doors



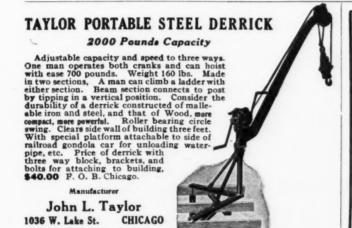
Trade Mark Reg. U. S. Pat. Off.

The Spots on the Cord are our trade mark, used only with this extra quality sash cord. Tests have shown that it will outwear_common cord or any other material many times over.

Send for Samples and full information

Trade Mark Reg. Samson Cordage Works
U. S. Pat. Off.

Boston, Mass.



Interior and Exterior CAPITALS AND ORNAMENTS



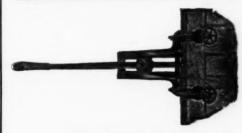
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DETROIT, MICH.

Most Complete Catalog Ever Issued

The Best That Is Offered

Telephone Monroe 3066



Two Minutes

TWO MINUTE LEVER LOCK MORTISER

The Greatest Time and Labor Saver.

Does the complete job the quickest. The easiest to operate. Cuts in any kind of wood. Any length or depth of mortise. No exaggeration in our statements. Send for descriptive circular.

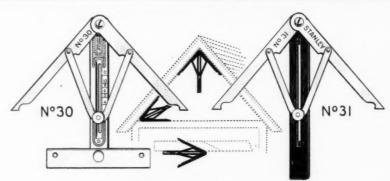
Our Butt Mortiser and Rule Gauge are handy little devices. Sent for 75c.

A. W. MILLER MFG. CO.

Main Office and Factory
Riverside, California

Eastern Office and Shop

For special information address, Riverdale, Calif.



Stanley Tools

All Carpenters have occasion to fit mouldings, or other wood work, into odd angles. To lay out the cut with an ordinary bevel necessitates the use of dividers and a second handling of the bevel, making three operations.

The Stanley Angle Divider is designed for performing this work at one setting and is practically a double bevel. The two blades each fit one side of an angle and the handle gives the center line. The cut is marked from the center.

In the No. 30, which is entirely of metal and nickel-plated, the handle is graduated on the under side for laying out 4, 6 or 8-sided work, and, by means of a removable "T" head (see cut), it can also be used as a "T" square. No. 31 has a rosewood handle, is not graduated, and has no "T" head.

No. 30 Angle Divider, 73% in. long. Nickel-plated. List each ... \$1.50
No. 31 Angle Divider, 8 in. long. Rosewood Hdle. List each ... 1.00

For Sale by all Hardware Dealers



Stanley Buled Level Ca. New Britain. Conn. U.S.A.



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New Starrett Protractor

One of the most useful tools a carpenter ever had. See full description in free Catalogue No. 186. With this tool in your class you can give away half a dosen or more which it will render back numbers

The L. S. Starrett Co., Athol, Mass., U.S.A.

Straight-grained cedar that cuts like cheese; smooth, tough leads that make clean-cut, strong marks—that's the way Dixon's Carpenter Pencils are described. Send 16c for generous sample lot 183J.

JOSEPH DIXON CRUCIBLE CO. JERSEY CITY, N. J.

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Does Five Times as Much Work as Could be Done in the Old Way

The Heald Machine Co., Worcester, Mass.

Gentlemen:—We have been using one of your "American Sash Trimmers" constantly for the last two and a half years, and are perfectly eatisfied with its work.

It is a great labor saver, doing five times as much work as could be done in the old way, and doing it cheaper and better.

Yours very truly, Mohawk Valley Lbr. Co., Fultonville, N. Y.

The letter only tells of entire satisfaction. It would take pages to tell of the many details of satisfaction this machine offers.

Our 30 Days' Free Trial

brings out all of these points. Just send us sample of your sash bar. We'll make up a set of special cutters and bed pieces to match. The machine will will then be shipped you for 30 days' trial—no strings attached. All we ask is an opportunity to show you.

Heald Machine Company, 2 New Bond St., Worcester, Mass.





PERFECTION ELEV

The Best Value for the Money in the World - Mechanically Correct

Dumb Waiters, Carriage and Store Elevators, Sidewalk Hoists, Etc., Etc.

Our Elevators are noted for their EASY RUNNING and SERVICE-ABLE QUALITIES. They are practically self-contained, and can be erected by any carpenter in a few hours. We furnish plans for erecting.

The Low Cost Will Surprise You

State your requirements, giving capacity, size of platform and number of feet to travel and we will name our lowest money saving estimate.

SYDNEY ELEVATOR MFG. COMPANY, SYDNEY, OHIO

THE FOLDING DRAW HNIFE

It's the Draw Knife that's the seller Right up to the Draw Knife law; It's the workman's prize and treasure And the Draw Knife that will draw



If your hardware dealer does not keep it, we will send it to your address postage paid. :

A. J. WILKINSON & CO., 180 to 188 Washington St., BOSTON, MASS.

SELF-SETTING PLANES are not sold in your town and you write us ther's pencil and our \$1.00 Certificate, which we will send you particulars, a ster's pencil and our \$1.00 Certificate, which we will receive as \$1.00 in the tor a SELF-SETTING PLANE as stated in our \$1.00 Certificate, and S. S. Plane is unsatisfactory and returned to us at our expense, we will sou \$1.00 more than you sent us as the \$1.00 Certificate says.

As this paper guarantees we will do as our advertisement says, you know the plane must be O. K.

ALL WE ASK is to have you TRY the SELF-SETTING PLANE on your own early, with or against the grain, on the WORST cross-grained, eaty, knurley, knotty, hard or soft wood you can find, THAT IS FREE FROM SAND OR DIRT.

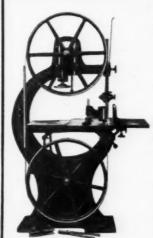
If it is not worth to YoU, OR YOUR MEN, TWICE ITS COST, teturn it at our expense as above stated.

MEN, IWICE ITS COST, return it at our usend us the addresses of ten carpenters, no matter where they live, send you another hard, tough carpenter's pencil. the SELF-SETTING PLANE a chance to PROVE ITS WORTH, it it return it and we will return your money.

Carpenters' Hard, Tough Pencils, 30c per dozen, postage prepaid.

GAGE TOOL CO., Vineland, N. J.

A Free Copy



Secrets of Successful Band Sawing by

Mr. Charles E. Wright, The Acknowledged Exponent on Band Saw Talk.

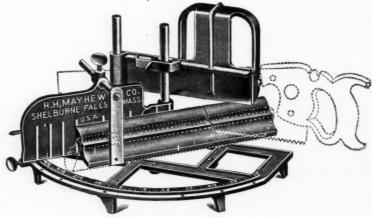
Would be mailed free. Send for a copy before our supply is exhausted.

We illustrate fifteen new model machines. Here is one, \$95 net. complete with all improvements as shown in cut. If you want a

machine to show economy in the general wear and breakage of saws here you are. Our catalog will tell you all about it.

The Chas. E. Wright Co. 317 Boulevard, Kenilworth, N. J.

MAYHEW 60° MITRE BOX



This box embodies more distinctive features than any other made

Designed for Simplicity, Accuracy, and Durability.
Strictly a right hand tool for mitering.
Box embodies a new feature in reversing the principle

mmonly used on other boxes.

Any of three saws may be used — Panel — Hand or Saw guide adjustable for any thickness of saw.

Extreme mitre to 60° without makeshift. May be used as a stationary or pivot box by use of the pin posts.

In mitering duplicate cuts there is no restriction on length.

Will cut compond mitre.

Parts take down into space 10x10x4 inches. Weight 15 lbs. complete.

Box contains full directions for use.

PRICE EACH, \$10.00

H. H. MAYHEW COMPANY, SHELBURNE FALLS, MASS.

Cannot Break



First in Quality and Improvements Automatic Stops holding up saw.

Corrugated Backs Graduated. Gauge for dupli-cate cuts and many other features

Send for Circular **QOODELL MFG. CO., Greenfield Mass.**

"Red Devil"

Carpenter's Tools Glaziers' Tools Electricians' Tools

ARE THE BEST TOOLS MADE

"Red Devil" Seavey Mitre Box

Cuts any



Weighs Pounds

Portable — can be carried in the Tool Kit.

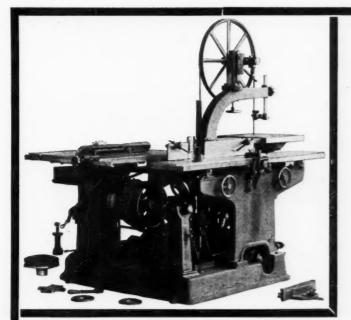
-We Make-Pliers Hack Saw Frames, and all "Red Devil" Tools.

Offer On return of this "Ad" and \$2.00 one of these Mitre Boxes will be shipped to any reader of "Carpenter & Build-er." Offer good for 30 days from date of issue

Smith & Hemenway Co.

150-152 Chambers Street **NEW YORK CITY**

UFKIN Tapes & Rules are Standards of Accuracy, Durability and Workmanship. SEND FOR CATALOG THE UFKIN RULE SAGINAW, MICH.



CARPENTERS! CONTRACTORS!

This Machine
WILL SAVE
YOU MONEY!!!

With the No. 51 CRESCENT UNIVERSAL wood worker in your shop, you have a complete planing mill instantly available. It is a machine that will save you money and that will give you a complete wood working outfit at a very moderate cost. The number 51 CRESCENT UNIVERSAL wood worker combines a shaper, 26" band saw, 8" jointer, saw table, boring machine. Regular equipment includes, resaw attachment, tenoning attachment, panel raiser, pole rounder, hollow chisel mortising attachment, disk grinder, knife grinder, emery grinder.

This machine fills the demand for a BETTER equipment for small shops, and will place them on an equal basis with the larger factories for getting their work out quickly, accurately and economically. If you are rushed for a job, you can operate the band saw, the jointer, saw table, and borer all at one time. This means that four men can work on the machine at one time without interfering with one another. There is no other wood worker on the market with which you can compare this tool. The machine is substantial, well built, durable, and is distinctly in a class by itself.

The machine is portable and is instantly adaptable for being moved from one place to another without the aid of crowbars or rollers. The countershaft is self-contained with the machine.

Each machine can be operated independently of the other. It is not necessary to stop all the machines when you want to stop one, and if you want to start one machine you do not have to operate any other.

You carpenters and contractors who want the best equipped shops owe it to yourselves to send for our special circular describing this splendid machine as this is the machine you will eventually buy.

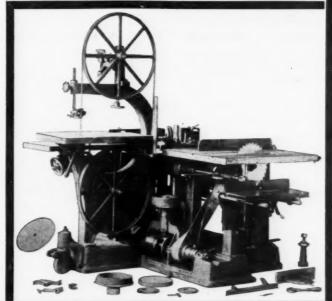
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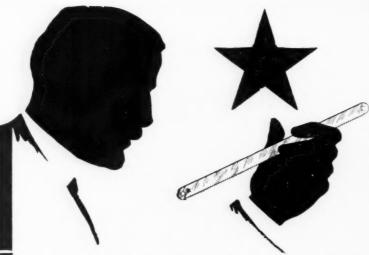
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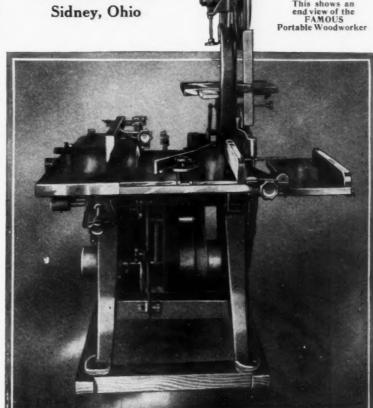
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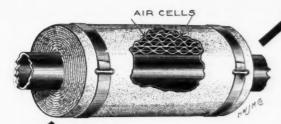
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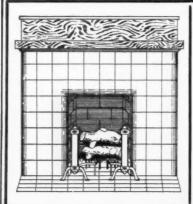
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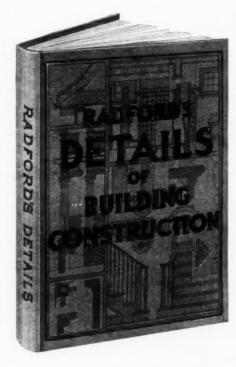
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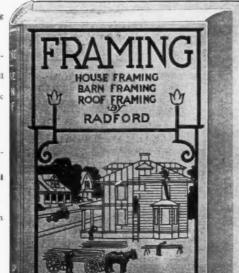
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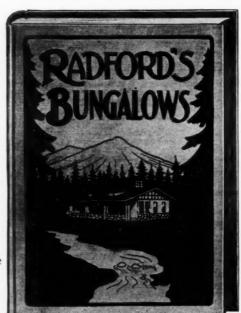
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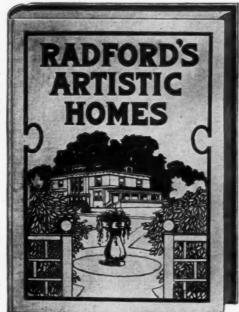
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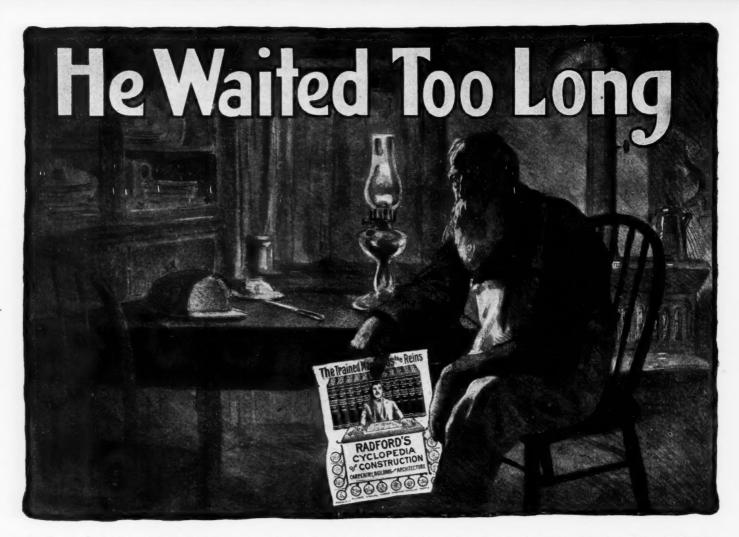
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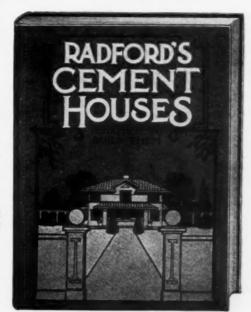
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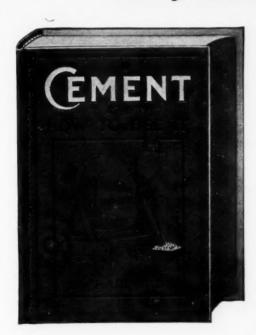
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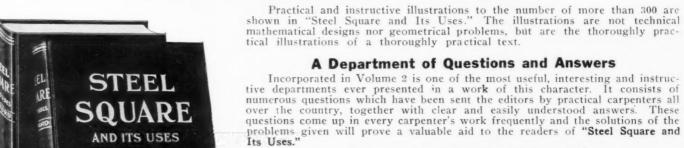
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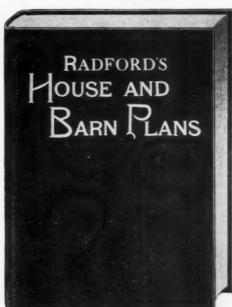
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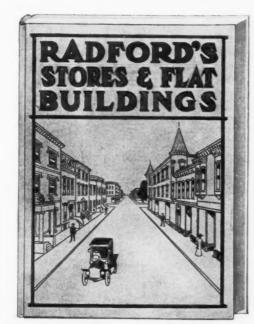
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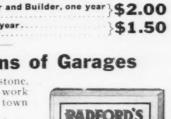
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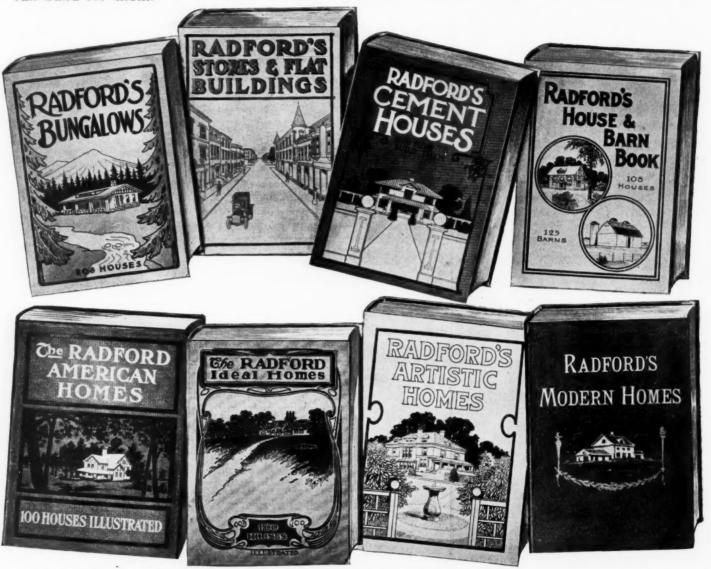
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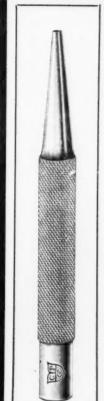
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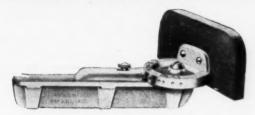
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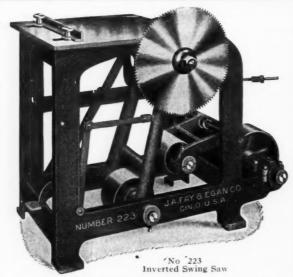
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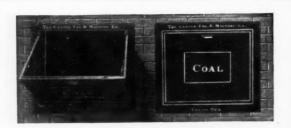
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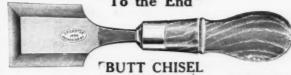
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This Method of Construction makes Warping, Twisting and Blistering less likely.



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Improved Metal Ceilings with Punched Nail Holes and Repressed Beads

Those particular features that saves so much time in the erection and increases your profits. They produce a nicer job.

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in two sizes, 10 x 14 inches and 19 x 26 inches.

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of all kinds for interior and exterior of buildings.



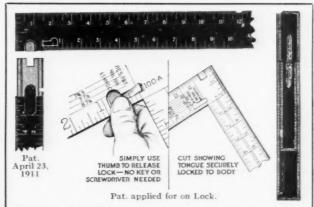
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No. 3 Standard \$2.50	\$2.75	\$3.00
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Add ten cents to the price of the No. 100R and 100A if $1\frac{\pi}{4}$ inch tongue is desired.

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Set that will set a saw properly. Our booklet No. 9 "Saw Points" tells how to take care of Saws. Sent free on request.

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BUT COST NO MORE THAN THE SUBSTITUTES



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on every genuine Bommer Hinge

Durable—Neat—Reliable

BOMMER SPRING HINGES

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Fales' Patent Variable Bench Plane Ask Your Dealer or Write

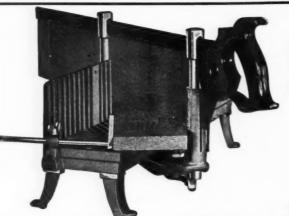
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Specialties

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Because:

It is absolutely accurate.

It is so convenient to use.

It is built to last.

It has an unusually large capacity.

The price is right.

Let us send you our illustrated circular.

H. C. Marsh Company

606 Race Street

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Building Paper

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American Carpenter and Builder

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VOL. XII.

JANUARY, 1912.

No. 4

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A "Carpenters' and Builders' Show" Suggested

THE following letters received from one of our subscribers, a contractor and builder of Morris, Ill., furnishes food for thought.

We wonder just how much of a demand there is for such a Building Show. There is no doubt but that if conducted right, good and far-reaching results would be produced:

Editor American Carpenter and Builder:

I read in your December issue an editorial, "To Educate People in Architecture." This describes one of the best moves, to my mind, ever made. I admire our government in this work; as there is nothing more unsightly than a house or public building (costing a sum of money equal to the best) that has had all architectural ideas lost by being designed by some carpenter who does not have the time away

from his ordinary work to study the principles of systematic designing of buildings.

I would advocate and like to see a "Carpenters' and Builders' Show" in Chicago, where all builders and others interested could go and see all the different kinds of materials displayed that are used today in building; also, the new tools and hardware, new designs in wood work, etc.—in fact, everything new and up to date used by the carpenter. It would educate a man in 3 or 4 days more than he could learn otherwise in that many years.

They have the Automobile Show, the Fat Stock Show, the Land Show, etc. Why not a Builders' Show?

I may be a crank on shows; but I want to say this—I am a reader of your paper and would not be without it; as it has something new every month for the man who wants to learn and lead, but not follow. I believe in the best at all times, and know I have it when I received "Details of Construction" with the American Carpenter and Builders. Success to you and a better paper and in time a Carpenters' and Builders' Show.

What do you say?

Respectfully,

H. A. TAYLOR.

We say: Not a bad idea, if (and here we hedge) it could be worked. Abroad they seem to do these things very well; the annual Ideal Homes and Building Show in London, for instance, is world famous. And we may get the combination in time, over here. It is not an untried scheme by any means. In several of our cities such expositions have been promoted—but with indifferent success.

"Going Down"

In the current issue of *Harper's Weekly*. Robert Sloss describes some of the wonders of the engineering that has made possible the tallest buildings in the world. It is the air lock, invented by David A. Moran, that has made the skyscraper possible. It is merely a steel chamber at the top of the shaft leading down to where the digging is done. "When the air-pressure in the lock is the same as in the shaft, you can open a door into the latter and haul up a bucketful of 'spoil' into the lock. Then you can close the door and reduce the pressure in the lock down to atmosphere without reducing it the least bit in the shaft. A door opens at the top of the lock and out goes the bucket to be emptied."

Georgia's Model Country Schools

IMPROVED DESIGNS FOR ONE, TWO AND THREE-ROOM SCHOOLS PREPARED UNDER THE DIRECTION OF AND RECOMMENDED BY THE STATE DEPARTMENT OF EDUCATION

By M. L. Brittain, State School Superintendent

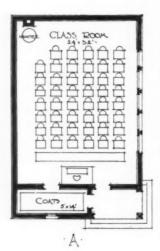
THE accompanying sketches of one, two and three-room schools are some of the suggestions offered by the Georgia State Board of Education for rural schoolhouses; and are an effort to combine good taste and economy of construction with logical planning.

Special attention is called to light, ventilation, and sanitation. Simplicity of construction and of the structure does not necessitate ugliness. Good proportions and pleasing compositions can always be had.

Inexpensive features can be incorporated in the planning of the simple schoolhouse that will not only add to its beauty, but also will serve as a practical means for arousing the interest of the pupil. Experience has taught that one of the strongest appeals to the pupils is to interest them in beautifying the school. Therefore simple and inexpensive means of doing this are provided. The sketches are along practical lines, with suggestions that not only may add charm and quaintness to the effect, but should arouse the interest of the pupil.

The following outline briefly describes the sketches, and approximates the cost.



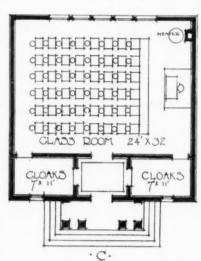


One-room school "A" is most compact and economical, providing for small entrance porch, coat closet, and large class room. The light is all from one side, pouring over the left shoulder of the pupil. If further light or ventilation is needed it should be on the opposite side, but never in the face of the pupil or teacher. This school should be built with weatherboard or shingle siding and with

a shingle roof. It can be erected at a cost ranging from \$275.00 to \$400.00. "C" is rather more elaborate in plan, providing separate cloak rooms for girls and boys. Its exterior is classic in treatment, and suggests more the public building than does "A." It should be built of brick, but can be made of wood frame with weatherboards for exterior. Its cost is estimated at

from \$700.00 to \$900.00; in brick it would be from \$1,000.00 to \$1,200.00.

Two-room schools; "A," or "B" is an economical plan and provides separate class rooms for boys and girls, and a common stack for the heater flues. The exteriors of "A" and "B" are sim-





ilarly treated along the bungalow style. "A" is less expensive and simpler in treatment than "B." A lattice border around the windows of the cloak room is suggested. Each should be built of shingle or weather-boarding on the exterior, and should cost from \$900.00 to \$1,200.00.

Three-room schools. "A," of the bungalow type. can be made quite charming with its separate entrances flanking the middle class room. Again the use of lattice work is suggested. In the gables plaster between the open timber affords an unique treatment.

"B," with the same plan as "A," is treated in the Mission or Spanish style. It can be built of either rough brick stuccoed over, or if frame, with metal lath nailed to a storm sheathing, and on this the stucco applied. If the tile roof is too great an expense.

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shingles stained red will give a similar effect.

The School Building. The adaption of the school room to its purposes, and not the external appearance, should determine the architecture. The school-room is the unit in all schoolhouse construction. The room should embody certain essential principles, and should not vary widely from the standard described below.

The number of these standard schoolrooms in a building will be determined by the size of the school to be accommodated, and the finish and architectural adornment will depend on the taste of the community and the money at the disposal of the trustees. It is possible to embody the essential principles of good

windows should be within six inches of the ceiling. The area of the glass in the class room should be one-fifth to one-fourth the floor space. The room 24 by 32 feet should have at least 150 square feet of window space.

In the construction of the schoolhouse, we must consider the use of the room inside, and not our conceptions of exterior symmetry. The plans herewith will show how this standard schoolroom can be worked into a building which is also presentable on the outside

In the front of each class room should be a movable platform five by six feet and six inches high for the teacher's desk and chair. This platform gives the





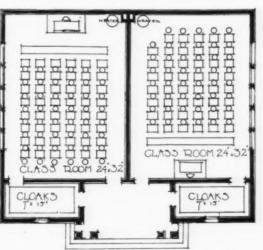
school construction in a very inexpensive building, or in a very elaborate one.

The Standard Class Room. The class room for the average class should be 24 by 32 feet and 12 or 13 feet high.

Whenever possible, the building should be placed so that the principal light will come from the east or north. This avoids the direct glare from the sun.

The windows should be placed on the long side of the room, and on the left side of the pupils. They should be

close together, so as to avoid cross lights and shadows. The front window on the side should not be placed beyond the front row of desks, and the rear window should be near the rear wall. No class room should have windows on opposite sides. It is better to have the light come from the left side of the pupils only. There should be no windows to the front or on the right of the pupils. Windows placed in the rear should either be transom windows above the blackboard, or should be provided with shades to protect the eyesight of the teacher. Since the best light comes from above the heads of the pupils, the tops of the



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teacher a better command of the class during general exercises and study periods.

Near the teacher's platform, or in some other convenient place in the class room, a book case with glass doors and with locker underneath could be built in the wall. This should be provided with lock and key.

The Floor. The floor of the room should be double and air-tight, the lower floor being laid diagonally, and the top floor tongued and grooved, with building paper between,

and should be stained with a dark oil stain. Much sickness, discomfort, and poor work in school are caused by defective floors. The entire exterior of the building should be covered with storm sheathing, nailed diagonally; on top of which is nailed the weatherboarding, with bulding paper between. The double floor and sheathing will make the building much more comfortable and will make quite a reduction in the fuel bill.

Heat and Ventilation. This subject has never received sufficient attention in the rural school. The ordinary heating apparatus of these schools consists of

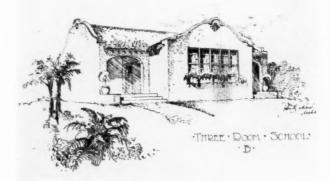
a square box stove, placed in the center of the room, from which heat is received by the pupils through direct radiation. This usually means that pupils seated near the stove are too hot, and that those distant from it are too cold. Its position in the center of the room interferes seriously with the seating arrangement.

A slightly greater investment will secure for the school a jacketed stove which heats the room by producing a circulation of warmed air through all parts of it. The principle of this stove is very simple. The cold air is taken through a pipe from outside the building, and is carried through or under the sheet iron into contact with the hot stove on the inside. It is there heated, rises to the ceiling, and

adapted to kindergarten and primary pupils, to No. 1, made for college students.

The Tinting of the Walls. The beauty and attractiveness of the school room will depend largely on the painting and the tinting of the walls. This subject is usually very much neglected. The glaring white walls, and deep blues, yellows and red should be avoided. For rooms where the lighting is not the best, a cream is desirable. In general, the best color for the school room is green. The wainscoting and woodwork should be a deep olive, the walls up to the picture moulding a sage green, and the ceiling a lighter stone green or cream color. All inside coloring should be "dull finish." For the woodwork the



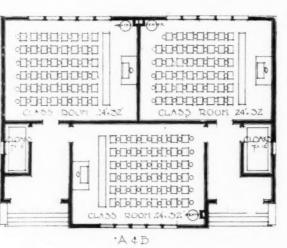


settles down over the entire room, producing a uniform temperature. As the impure air in the room settles to the floor, it is forced up through a pipe or wall register into a section of the flue, and carried from the building. The jacket prevents undue heat for the pupils seated near the stove.

The temperature of the schoolroom should be kept between 68 and 70 degrees. The windows should be opened and the room thor-

oughly aired at recess and at the close of the school session. Thirty cubic feet of air per minute per pupil, or 1,800 per hour, is the accepted standard for school-room ventilation.

Seating. A room 24 by 32 will easily seat 48 pupils in single desks. The initial cost of single desk seating is greater than that of double desks, but this is more than balanced by the better order and discipline made possible by the single desks. The desks in such a school room will be arranged in six rows, each containing one "front," one "rear," and seven "completes." School desks are made in standard sizes, and are numbered from No. 6, the very smallest desk,



green stain and a "wax finish" is the cheapest as well as the best. An inferior grade of lumber can be used on the interior if well painted. All interior woodwork should be flat and plain, and all deep cut moulding avoided as far as practicable. These mouldings catch dust and are difficult to keep clean. A picture moulding should be put on the walls of the room about 18 inches below the ceiling. A good finish can be gotten by wains-

coating the space around the room below the black-board level, although this is not as sanitary or desirable as the plaster and baseboard. A sanitary finish can be obtained by omitting all wood casing around the windows, and plastering the corner round against the window frame, and using a very narrow baseboard and few mouldings. The plastering should have a very fine sand finish.

Cloak Rooms. It is unsanitary to pile hats and wraps promiscuously in the corner of the class room, or to allow wet coats and umbrellas to dry out in the room occupied by the pupils. Every class room in a



Look to the Inside Walls

A FEW RAMBLING BETTER BUILDING REMARKS ON WALL COVERINGS AND FINISHES BOTH SPECIAL AND OTHERWISE

Interior Walls and Ceiling's Constitute Two Thirds of Any House, as Viewed from Within. Why do Home Builders Neglect Them? A dwelling is made or marred depending on how the Inside Walls are Finished

THE Observer has been up to his own particular hobby again—observing how the building world wags. His gaze has been focused of late on walls—interior walls and ceilings of our average American dwellings.

And he has been in turn shocked, amused and saddened by what he has observed.

Did it ever strike you how little planning ahead is done, about how the inside walls of "the new house" are to be finished? Neither the owner nor builder, nor even "the architect," for that matter, seems, in the majority of cases, to give any thought at all to the covering and decoration of the interior walls and the ceilings, until the building is fully completed in every other respect; then the luckless decorator is asked to do the best he can.

In approaching this subject the Observer opines it is necessary first to appreciate the importance of the inside walls of a building. Some of course consider them as necessary evils, as being only the things that separate one room from another, and there seems to be a tendency in some modern work to do away with them as much as possible. Nevertheless, fully two-thirds of the total view of a dwelling one has when inside is of walls and ceilings; and the whole interior effect—whether for good or bad—depends on the way the walls are treated. They may be quiet and restful, unassertive, a simple background for pictures and furniture, or they may be so treated, either through the covering itself or by decorations, that they are real works of art in themselves.

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Too often they are neither of these, but are either bleak and dreary, monotonous; or are so noisy and boisterous as to be a nuisance.

Is it not strange then that people building give so little thought to this matter of wall covering? Nine

times out of ten the specifications read, "Walls and ceilings to be finished as directed by owner; cost for this item, for materials only, not to exceed——dollars." This puts it entirely up to the owner, letting out both architect and builder very handily. But the trouble is the owner is not a decorator, in any sense of the word. He may think he knows "what he likes"; but the chances are very good indeed that he (and his friends) will be disappointed and perhaps shocked afterwards with the results, and the new house is not the satisfactory success it was hoped to be.

It may be all very well if only the ordinary cheap wall paper is to be used anyhow, but if something better is wanted, and it is sheer folly not to want and to have something better—when such satisfactory and striking effects can be had at so slight a cost; then the matter of wall covering and decoration should be planned for in advance. Since the entire atmosphere and appearance of the interior of a dwelling depend on how the walls and ceilings are finished, one treatment producing one effect, another style of treatment an entirely different one, it seems only logical that the man who is building should decide in advance, in consultation with his architect or builder, just what he wants; and then make the other parts of the dwelling be in harmony with it.

In other words, he should study up on wall coverings and wall finishes. Carpenters and building contractors, as well as architects, should likewise pay a little special attention to this important feature so that they can serve and advise their clients intelligently.

The Observer knows that Better Building makes satisfied customers—and pays. He has also observed that Better Building means, in most cases, planning ahead. And this costs not a cent more.

In considering the subject of wall coverings and finishes, two general groups, or classes of material, offer themselves. They are suggested by this common phrase "coverings and finishes."

Wall coverings are, in the main, fabrics especially made for use on interior walls. A number of years ago burlap wainscotings were all the rage. No dining room or den was considered in any way *sumptuously* finished unless it had a burlap wainscoting.

Burlaps are still popular; and they probably always will be. However, of late years, other fabric wa'll coverings have been coming in—improvements on the old time burlaps. A great variety of such fabrics have been developed. The sample books show fine and coarse weaves, smooth surfaces, rough surfaces and brocaded tapestry effects. One cannot help feeling in viewing these, that such fabrics are too good to be pasted onto walls; yet their cost is surprisingly low.

Other fabrics are coated and made to look like aluminum, gold, burnished bronze, etc. The grass cloth fabrics are also in prominence. All of these, while costing somewhat more than ordinary wall paper, nevertheless prove exceedingly good investments because of the striking and attractive interiors they produce. The American people to-day seem to be very keen for novel and striking effects in interior decoration, and are willing to pay more than they are worth; that is to say, more than they actually cost, for the privilege of having them.

The other general class, as noted above—the wall finishes—include cold water tints (the various calcimines) and the flat wall paints. The tints are pleasing and restful, an agreeable background for pictures

and furniture, being very attractive, yet low in cost. Walls so finished are commonly redecorated every year. In this way they are conducive to sanitary conditions.

The flat oil paints are used to produce very beautiful interiors. Stenciled decorations are very commonly employed with them. While these oil paints are a little expensive in first cost, they prove economical in the long run, since walls so treated can be washed, and so kept bright from year to year.

In addition to these two general classes, there are also numerous special wall coverings that possess great merit and are well worth examining. During the past year thin veneers of real wood backed up with paper, or fibrous composition, have been offered. With these it is possible to have paneled wainscotings in real wood, finished and polished in the regulation way at about one-quarter the cost for solid wood panels.

Every residence is either made or marred, depending on how the interior walls and ceilings are treated. Since in this campaign for Better Building the keynote is to give the customer work that will be permanently satisfying to him, it is evident that builders should get thoroughly posted on this important subject and see to it that "the man who is going to build" gets the benefit of their experience and special knowledge in every case.

"Better Buildings" and Our Readers

"The sweetness of low prices never equals the bitterness of poor quality."

Which Shall it Be-Price or Quality?

A writer on economics recently summed up the difference between price and quality as follows:

"Competition in price makes a direct appeal to the customer's pocket, but diverts attention from the goods. Its tendency is always downward towards the bed-rock of cost, beyond which there is no going.

"Competition in quality, on the contrary, is an appeal to the taste and intelligence of customers based on the goods and their merits. Many merchants and manufacturers hesitate to trust public taste. In the belief that the average consumer does not appreciate fine points of quality. But those who do rely upon it seldom go wrong, and the whole trend of quality competition is upward.

"There is never very much room in which to make or sell things more cheaply, but there is always a world of room in which to make or sell them better."

Hot Shot about "The Big Stick"

To the Editor: Watertown, N. Y.

In the November number I had a few lines, giving my experience on roof repairing, urging the use of galvanized nails on all wooden roofs, at all of which Mr. Burr Gunsaullus of Baldwin, Kan., takes offense, and gets quite sartastic in his advice to me.

I am very sorry that he looks at what I said in such a

way. My only purpose was to call to the attention of my brother workers one or more of the evident causes of leaky roofs, and a way to avoid some of it by the use of galvanized nails of at least four-penny size.

Mr. Gunsaullus evidently does not grasp the idea for which this department was started. It's for the mutual interchange of ideas amongst our members as to how to do better building. It's no place to start a controversy. I merely wanted to be of some little help to those who are willing to learn of better ways of doing things. Mr. Gunsaullus does not seem to be of that sort.

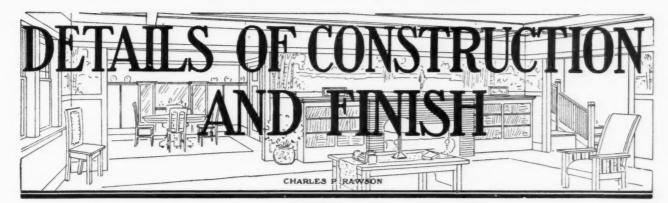
He does me the honor to call me proficient in roof repairing, and says I should let all the architects know of it, and urge them to give me the overseeing of their work on the jobs, with a BIG STICK over the heads of the contractors, and compel them to live up to their contracts. Now I don't lay claim to any such ability. I wish I had it. But in all honesty I think it would be a good thing in a great many cases.

Mr. Gansaullus must have had some experience with the Big Stick, for he says, "I for one will not have any more of it," and shouts for all the other brothers to fall in line. Well, perhaps he can do so, but I very much doubt it.

The contractor who is willing to carry out his agreements does not object to having his work supervised, but rather does he welcome it, for the reason that if it's passed upon and accepted it's one of his advertisements when he again goes out to put in a bid for a job.

J. M. KANE.

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Built-in Colonial Book Cases

TWO FULL PAGE PLATES SHOWING SCALE WORKING DRAWINGS OF ATTRACTIVE CASES TO BE BUILT INTO A RECESS OR TO PROJECT

E have been requested by a subscriber to give complete working details of a built-in Colonial bookcase; and in order to make the same of more general interest we have designed it so that it may be either recessed in the wall or set entirly in the room, and optional elevations and plans are given carrying out this idea. All plans, elevations, and sections are drawn to a scale of three-quarters of an inch equals one foot; and the various parts of the case are detailed to the scale of one-half full size.

It will be noted from the drawings that the case contains two large drawers at the bottom, above which are located two wide cases, each with a glass door and three movable shelves.

There seems to be a general misunderstanding among builders as to just what is meant by the term, "Colonial," as applied to buildings, furniture, etc. Used in its true and literal sense, it should be limited to the structures of the colonists, from the time of the settlement of Jamestown until the War of the Revolution. This restricted definition excludes the work of the late eighteenth century. But the word has been so long used in a wider sense that it is generally applied so as to include the buildings and household effects made as late as 1820; and this broader meaning is undoubtedly the right one.

Colonial structures from the first showed a variety of types, for the early settlers, as nearly as they possibly could in a strange country, reproduced the homes of their native land. The furniture and houses of the Pilgrims were unlike that of the Dutch settlers; and each differed from that of the English colonists in the south. Equally distinct were the works of the French explorers in Louisiana, the Huguenots in Canada and the quaker and Swedish settlers in Pennsylvania.

Gradually the dividing lines between these various styles or types became more marked and remained so until the beginning of the eighteenth century; but

E have been requested by a subscriber to give varied as they were, there were certain features comcomplete working details of a built-in Colmon to all.

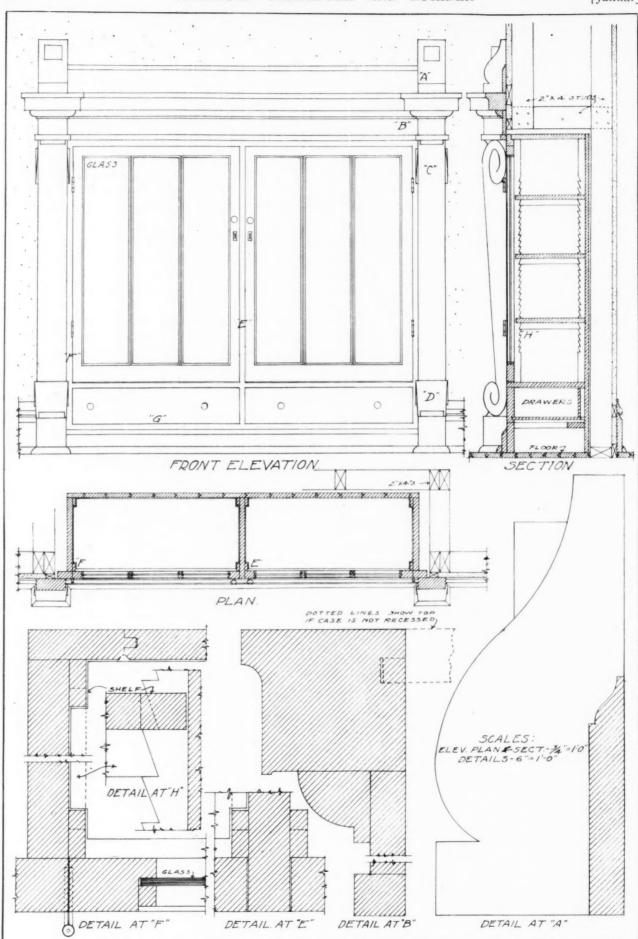
Whatever extravagances marked English and Continental styles during this period, and they were many, designs in this country leaned toward simplicity. It is this quality that renders Colonial houses and Colonial furniture as satisfactory to-day as at the time of its origin. Grace and strength were two qualities which the Americans so successfully united.

Any room containing the accompanying design should, of course, be carried out in the Colonial style, and the standing woodwork should in all cases be painted white and finished with enamel. The bookcase itself may be finished in mahogany, in case the doors of the room are given this finish as is sometimes done in Colonial work; or both may be finished in white.

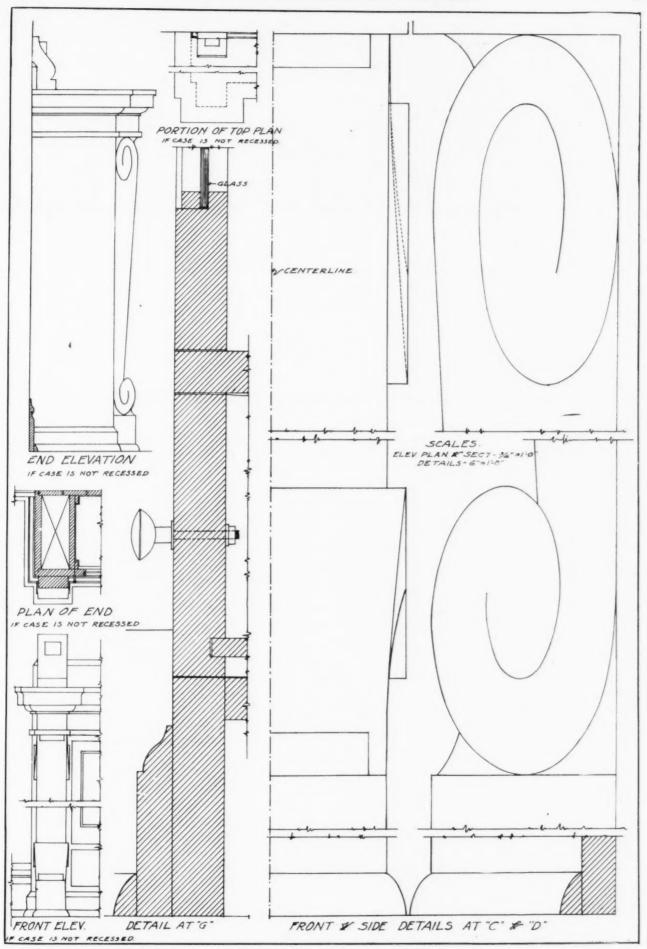
Catalpa Trees in Four Years

NE of our Philadelphia city merchants recently gave away many thousands of Catalpa seedlings, one to every child in the public schools, it was said. The daily papers, recording the fact, stated that these one-year seedlings came to maturity in four years. The soil of Philadelphia is very good for trees, but good as it is it would take ten times four years to bring a catalpa to maturity. The tree is certainly a fast grower, and the children who planted these trees should get a good strong fishing pole in four years, as in eight years when grown for forestry purposes and well cared for they have been known to have been of a size that the best of them could give a good fence post at least. Those who prepared the notes for the daily papers as well as the editors themselves could know little of tree life to think that the catalpaor any tree, in fact—could reach maturity in four years. The reports did not say which catalpa was used; it is to be hoped it was speciosa, the only one good for timber purposes.

FULL PAGE PLATES SHOWING COMPLETE DETAILS ARE PRESENTED ON THE TWO PAGES FOLLOWING



BUILT-IN COLONIAL BOOK CASE-RECESSED



ARRANGEMENT OF BOOK CASE TO PROJECT INTO ROOM



E have arranged with an expert Builders' Hardware man, of 30 years practical experience, to conduct this Department. He will gladly and free of charge answer all questions from our readers, pertaining to Builders' Hardware. He will also prepare for our readers full size detail drawings showing best arrangement for the proper placing of the hardware on casements and other windows, doors, etc.

These will be standard, universal details, which all architectural draftsmen should use in their plans, and which all millmen should follow in "getting out" their doors, sash and

This service is absolutely without cost to readers of the American Carpenter and Builder. We are glad to be of assistance in instructing the building public along the lines of Better Builders' Hardware.-Editor.

Our Hardware Expert Makes His Bow

every requirement of the carpenter, builder, and architect, to protect life and property.

Our first parents had no property, hence needed no hinges, locks or fasts.

History of ancient times makes no mention of hinges, locks or fasts.

The metals, which were precious, because of their scarcity, were put to better uses in those good old

Lycurgus, the wise Greek, saw much virtue in iron. He put it to its best and most important use-money. He needed no hinges, locks or fasts for its guarding.

Human watch dogs, in the old times, were a substitute for hinges, locks and fasts.

The Hottentot requires no hardware.

The aborigine of America had no use for it.

The people having the most civilization, the most wealth, and the most things of value, are the people who use the highest grade and the mose expensive articles of builders' hardware.

Germany must be credited with the invention and manufacture of the first practical articles of builders' hardware. They made them from iron, with the aid of the forge, the hammer and the anvil. They have made little progress in invention and improvement of the articles in use. They have added the artistic touch to these things, so that now you stand and gaze in wonder at the beauty and perfection of their art.

The best specimens of their art of ancient locksmith work were on show at the Philadelphia Centennial Exposition of 1876.

The French have aped the German wrought iron

HERE are hundreds of articles in the builders' work, but they spoiled it from an artistic standpoint hardware line, which are designed to meet by smoothing and polishing it to make it pretty, whereas the German stuff is left unfinished, showing the hammer and tool marks just as it left the forger's hands.

> The French to-day and for the past half century. are and have been producing some of the most artistic and expensive builders' hardware, but they have sacrificed utility to beauty. Much of their stuff is hand chased, burnished, gold lacquered or gold plated. Most of it cannot be applied to American standard de-

> Nearly all of the German and French locks are of the rim type of locks.

> There are some antique wrought iron locks, taken from old castles of the Flemish people, to be seen in museums. They are of the so-called half mortise

> The half mortise lock is set in flush on the face of the door.

> The Flemish locksmiths knew the use of the night latch, this proves that Flemings of the male persuasion were sad dogs and must have had trouble with their good wives. These same sad dogs must have been husky fellows, as the key they had to carry was about eight inches long and weighed two pounds avoir-

> Many men have blessed the locksmith of old because of this key of great size and weight.

> Bachelor maids were unknown. The gentle sex clamoured not for their rights.

> The key of the Yale type may now be found in the possession of all women the world over.

Woman of advanced thought should bless the Amer-

ican inventor who placed in their hands this key. Credit may rightfully be given this key for the freedom which they now enoiy.

America, one hundred and thirty-six years ago, in lighting the torch of liberty, was of profound influence is gaining freedom for men.

America to-day, in furnishing the world with locks having this small key, is again exercising a profound influence in gaining liberty for women.

In our early days we purchased English hinges, locks and tasts.

The English were more advanced in the art than their neighbors on the continent. King John, early in the thirteenth century, through his ratification of charters to the Jews, guaranteeing them certain rights, brought about an influx of these most desirable people, who were persecuted on the continent.

Many of these Jews were of great wealth. England's rise to great power is credited to the wisdom of the king in this connection. Greater wealth required better hardware—for protective purposes.

America's pioneer in the middle west had no means of transport from the settled portions of the east. He carried in his pack or in his canoe, things of greater value than hinges, locks and fasts,—the rifle, powder and ball for the protection of life and the same necessary items to furnish him with the necessities to sustain life. The axe and the nail were the things needed to furnish him his habitation.



THE "DAVY CROCKETT" LOCK

In conclusion it may be of interest to the reader to recall an historical incident relative to Davy Crockett.

This daring pioneer, it will be remembered, when chased by wolves upon an occasion, threw himself into a log cabin, hastily closed the door in the faces of his pursuers, and used his arm in lieu of the bar which was in general use as a means of locking the place against intrusion. Thus Davy Crockett may be truthfully credited with having been the inventor of the first strictly American lock.

The writer deems it necessary for the proper understanding of his readers, that he furnish them with a short dictionary of the names by which the different articles are known in the builders' hardware trade.

Hinge, so called because it is applied to the surface of the door and the frame.

Butt is the hinge, so called because one leaf is applied to the edge of the door or sash and the other leaf is applied to the face of the jamb.

Surface Bolt is used on the so called standing or inactive leaf of a double door, French window or casement sash.

Flush Bolt, so called because it is sunk in flush with the surface of the wood. Its entire length is in sight.

Flush Extension Bolt is a substitute for the flush bolt, but it differs from same, the connecting rod is hidden, only about 6 or 7 inches of the face of the bolt is in sight.

Cremorne Bolt is a device designed to hold both leaves of a casement or French window closed, as it is applied to the leaf closing last, it is a surface bolt because it is applied to the surface of the wood and is operated by the twisting of a knob or lever located equal distance from ends, and by the twisting of the knob or lever the ends of the rods are extended and forced into the strikes or keepers.

Chain Bolt is a surface bolt used at the top of high doors; it is most practical in use, because a high door usually warps and the slamming of the door will allow the spring latch to engage with its keeper or strike.

Mortise Bolt, so called because it is mortised into the edge of the door. When door is closed, all that shows is a turn knob on the face of the door

Mortise Knob Latch, so called because it is mortised into the edge of the door and operated by a knob on either side of the door.

Mortise Knob Lock is the same as above with an additional dead bolt operated from either side by a key.

Mortise Dead Lock is a lock which has no latch or knobs, it has a dead bolt operated by a key.

Rim Knob Latch—Rim Knob Lock—Rim Dead Lock—are the same as the above three kinds of latches and locks, and are so called because they are not mortised into the door, but are applied to the surface.

Many articles are known as locks. This is wrong. An article cannot be a lock unless it is operated by a key. Better names are given these items by the larger manufacturers:

Sash Fast, so called because it is used to make FAST a double hung window.

Casement Fast, so called because it is used to make FAST a casement window.

Door Fast, so called because it is used to make FAST an outside door, and sometimes called Door Guard, because it is used to guard its occupant against intrusion when door is ajar 4 or 5 inches.

Bit Key Lock has a key having 1 or more tumblers.

One Tumbler Lock has one cutting in the edge of the bit.

Three Tumbler Lock has more than one cutting in the edge of the bit.

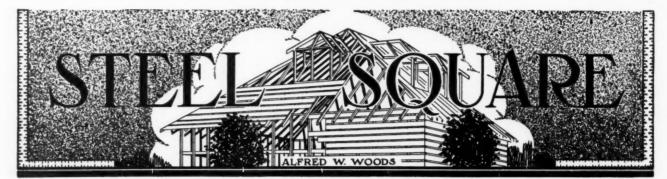
Cylinder Lock has the so called Yale type of key, this type of key and lock is now made by many manufacturers and is so well known that it needs no description.

Front Door Lock has a latch bolt operated by knobs from both sides of the door. Outside knob can be made fixed by stop in face of the lock. It also has a dead bolt, operated by turn knob or key from inside. Key operates dead bolt and latch bolt from the outside.

Vestibule Door Lock has a latch bolt operated by knobs from both sides and outside knob can be made fixed by stop in face of the lock. Key unlocks latch bolt from outside.

Night Latch is a self locking lock operated by key from outside and turn knob on inside. It is generally used on a door already equipped with the regular knob lock.

The above mentioned items are the articles in general use and are in daily requisition by the carpenter, builder and architect.

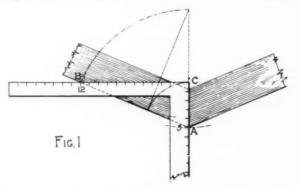


Practical Uses of the Steel Square

DEFINING A GENERAL RULE FOR ROOF FRAMING BY THE AID OF THE STEEL SQUARE

HERE is an old saying that "A workman is the plates rest at less than 90 degrees apart. known by his chips," which has more truth in it than poetry, as the scrap pile is a pretty good index as to the quality of his work; and if applied to roof framing, the scrap will not only indicate the quality of workmanship, but will also tell what kind of a roof he has framed and what figures or proportions on the square were used for the cuts. This statement may seem a little strange to some who have not made the subject of roof framing a study, but such is the case.

The most complicated roof may be framed on a new building site; and after the rafters are framed, they may be scattered to the four winds, as it were, leaving only the little blocks, scattered among the blades of grass, that may chance to miss the clean up; and

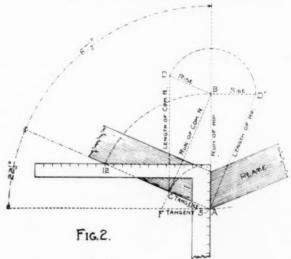


from these discarded blocks-like Sherlock Holmes gathering bits here and there and comparing this with that, finally weaving a chain of evidence to trap the villain in his den-so it is with the cast off scraps, they tell the story as to what has gone before.

The miter of the plate that forms the corner of the building is the first indicator as to what kind of a corner the building has, whether it is an obtuse, square or acute; the formula we herewith illustrate, applies to all alike. So it does not make any difference what kind of a corner it is, as one is just as easily handled as the other.

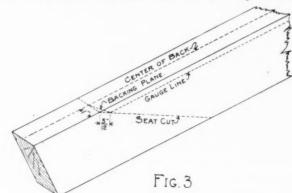
First let us define these corners; an obtuse may be any shape when the plates rest at an angle more than 90 degrees apart; a square corner is when the plates are at exactly 90 degrees apart, and the acute is where

In Fig. 1 is shown an obtuse corner, and to find the starting point, take the steel square, place the blade on the line of the miter, shove it along until the figure 12 on the tongue will rest at the edge of the plate and



the part covered by the square, as bounded by ABC forms a triangle which will represent the plan; and by the addition of the desired rise, the length and cuts of the rafters may be determined, as shown in Fig. 2. Here is the same angle of corner, as shown in Fig. 1, to which is added the developing lines, as follows:

Reverse the plan, so that the side AC will rest along the edge of the plate and AB in line with the miter. Then CB will represent the run for one foot run of the common rafter and AB will represent the



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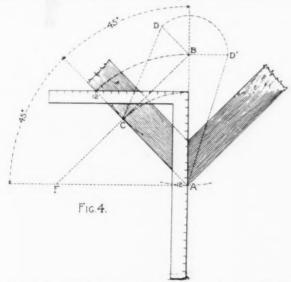
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corresponding run for the hip. From B and at right angles from these respective runs, erect the rise as at D and D' as shown. The run and rise of these respective rafters will give the seat and plumb cuts. The tangent (AC) and the length of the common rafter (CD) will give the side cut of the jack; the side on which the latter is taken will give the cut. The same figures will also give the side cut of the hip, right and left, provided the hip has been previously backed and the square applied to the backing plane. These same proportions will also give the cut across the face of the roof boards to fit over the hip, the cut in this case being on the tangent side.

For the side cut for the unbacked hip, take the tangent (FA) and the length of the hip (AD'), and the side on which the latter is taken will give the cut.

The backing of the hip may also be obtained from the figures 12 and 5 in connection with the steel square, which forms the plan bounded by A B C, as follows:—

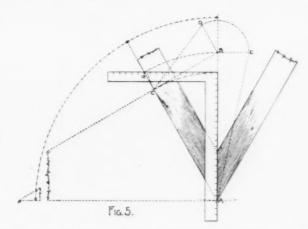
Let 12 represent one-half the thickness of the hip, then on the seat cut line, set off 5/12 of half the hip's thickness; this will be the point for the gauge line. In other words, if the hip is two inches thick,



half of its thickness would be one inch, then the amount to set off would be 5/12 of one inch, as shown in Fig. 3.

While the above description is given for the obtuse corner, it also applies to the square and acute corners, as shown in Figs. 4 and 5 respectively, as it will be seen that like letters represent like parts, though, of course, their proportions are necessarily changed. While the angle shown in the first two illustrations are in the obtuse class, they are the same as the octagon; but, as we said before, the angle could be anything. In this, the angle between the plates is 135 degrees and $22\frac{1}{2}$ degrees on the square will give the octagon miter.

The reader should fully understand that the scale here given is the full scale for one foot run of the common rafter and the lengths of the rafters are found in the usual way of running the square. If desired,



this same principle may be worked by using a scale of one inch to the foot run of the common rafter; that is, if the run is ten feet and five inches, the starting point on the tongue would be 10 5/12 inches and the procedure would be the same as above, and the whole diagram would be to the scale of one inch to the foot. This method has some advantage over the other, because the fractions in the run, if there be any, are taken care of in the scale; but it should be remembered it requires very accurate measurement.

Georgia's Model Country Schools

(Continued from page 46)

school building should be provided with a cloak room adjacent to it sufficiently large to accommodate the hats and cloaks of the occupants. It should be provided with shelves and two rows of hooks for hats and coats. It should in all cases have outside ventilation by windows.

Fuel and Work Room. Every school building should have a place in which fuel can be stored. A pile of wood in the room itself does not contribute to an orderly class room.

The best schools everywhere are recognizing the fact that there are many exercises other than study and recitation from the text-books of the course which can be profitably conducted in connection with the rural school

In the city schools manual training is now recognized as a subject worthy of a place in the curriculum. For the country boy the varied exercises of the home and farm may take the place to some extent of the formal manual training course. Nevertheless, we believe that in every country school there should be the ordinary tools of the country home, such as the hammer and nails, brace and bit, paint and brushes, saw. axe, and plane; and the boy should be encouraged to use them in making the schoolhouse and grounds more comfortable and attractive. An admirable beginning for a school improvement league among the children of a district would be the acquisition of a few school tools and a little lumber, coupled with a few suggestions from the teacher as to desirable repairs and improvements in the building and surroundings.

Hardwood Doors Popular with Builders

tried, and have not been found wanting. They have stood the test. Practical carpenter-contractors and builders have used them in the past, and are using more and more of them every day. Their indorsement means something.

The architects approve of the hardwood veneered doors, as made to-day, because of their beauty of appearance. The carpenters like them because they are conducive to good work, making a nicely finished job that they can take pleasure in. The owners like them for both of these reasons, also because they feel assured that doors so made will not warp nor check, but will be durable, presenting as fine an appearance in ten, twenty or thirty years as on the day they were hung and finished.

We find the subject of doors exceedingly interesting. Surely contractors and builders must share this interest, since the door is one of the most important parts of any building.

It has been pointed out that the door is in a way a badge of civilization and progress. An authority writing on this subject has said, "Primeval man was thoroughly satisfied to close the entrance of his cave with a bear skin, but through the ages there has been a considerable advance in the methods of protection against the weather, wild animals and other enemies.

ODERN hardwood veneered doors have been It would be interesting to trace the door forms through the various phases of development. Many materials have been used for doors. Sometimes of stone, heavy and cumbersome, and again a delicate screen of fretwork. Today metal and asbestos doors offer protection from fire, felt-covered doors deaden sounds, and glass doors are fair substitutes for windows.

> "But the main material for doors is wood, and to certain degrees different varieties offer widely varying amounts of protection and efficiency. Heavy oak doors, iron bound, protected the medieval castle; and today oak doors, of lighter construction, protect our homes; other woods-birch, pine, cypress, gum, etc., are used when their particular grain or figure add to the color scheme or design.

> "The advance in construction ideas has for some years been along the line of adapting various woods to decorative and constructive purposes. The improvement in the dry-kiln and methods of seasoning have produced lumber far more dependable in quality than formerly; and methods of sawing and cutting veneers give us the most beautiful figures and patterns at a minimum of labor and cost.

> "No item has contributed more to modern construction of doors than the methods of building a door by facing a light pine core with a veneer of harder, heavier and more expensive wood. The use of a light







Unselected Birch Doors of the Very Best Type of Construction-Beautiful in Natural Grain and Will Take any Finish-Their Cost is Very Moderate

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center decreases the weight appreciably, meaning less labor to swing them, with a saving in hinges and locking devices. Using only a thin veneer of expensive wood enables us all to enjoy the appearance of the finest woods, formerly seen only in houses of the wealthy, while the method of building up the core and applying the veneer insures the door against warping, twisting, sagging, etc., so common in doors of less careful manufacture.

"Any kind of wood can be used for the veneer, although the tendency at present is to use birch or oak. The former possesses a beautiful grain and figure, as may be seen in the door panels shown here. Birch can be finished in many styles or to match mahogany or other expensive woods. Oak, always the symbol of strength, makes an extremely durable and satisfying door in any of the standard finishes. It is to be hoped that on account of the thinness of the veneer the best cuts can be used and a quarter-sawn veneer costs but



Section Showing Construction of "Nenador" Gum Veneered Doors

little more than the plain. There is, therefore, every reason why a veneered door is preferable to the solid door, and it is only occasionally that we see a solid door of the more expensive woods. Indeed, we have seen a veneered door of clear white pine where it was especially desired to avoid warping, etc."

A very popular combination for doors and trim is the hardwood veneered door with yellow pine trim. With the birch door, in particular, this makes a very effective combination, and it is one that appeals strongly to the average builder, since the cost is very moderate. When the yellow pine is properly finished it compares very favorly in appearance with the hardwoods; and with the birch, or other hardwood door, establishing the note of high quality for the interior finish, the net result is all that could be desired.

Red Gum Veneered Doors

It was only a comparatively short time ago that red gum was heralded as a "new" wood. This, in spite of the fact that the south central portion of the country stands thickly dotted with red gum forests, which have been there for ages, and which were only awaiting the proper development in the art of wood seasoning to supply both the furniture and the building trades with as beautiful and satisfactory hardwood lumber as could be desired.

The old notion was that red gum would warp. It got the reputation for being a contrary wood.

Under modern improved methods of seasoning and drying, however, all of this difficulty has been re-



2-Panel Door of Unselected Gum Veneer—Showing Startling] and Beautiful Graining of this "New" Wood;

moved and gum is finding itself very much in demand for building.

Gum is known to the trade by two names, each designating a wood as different from the other as black is from white—"Red Gum" and "Sap Gum." Yet. strange as it may seem, both of these woods are from the same tree.

The *red* gum is the heart wood. It is distinctly red in color, on the order of mahogany, or satinwood. The grain is pronounced; it is fine in texture, but twisted and curled, beautifully figured.

The outside of every tree is the sap wood—sap gum. This is white, smooth—almost without grain.

Intermediate between these two, there is, of course, a neutral ground, part red gum and part sap gum. This is known as *unselected* gum. As can be readily imagined, veneers cut from this section show very startling figures and freaks of graining.

When finished, the beauties of these woods—the red and unselected gums—have to be seen to be appreciated. A recent development in hardwood veneered door making is the employment of red and unselected gum veneers over white pine cores. While these doors are



Door of Red Gum Veneer—Rich and Attractive in Appearance, Modest in Price

moderate in cost, they show a great richness in appearance (note accompanying photographs), and it is expected that they will prove very satisfactory with builders. They are sure to grow in popularity as they become better known.

New York State's Motor Trucks

Eight thousand commercial automobiles are registered in New York State, according to a statement made by the secretary of state. Yet the production and use of motor trucks and deliery wagons is only fairly under way. It is the concensus of opinion that in a few years this branch of the automobile industry will exceed in importance and volume the passenger car business that has now become the third largest manufacturing industry of the country, with exports amounting to \$20,000,000 annually.

At least 50 per cent of the commercial cars registered in the state are used in Greater New York, where conditions now almost prohibit the economical use of horses. Business men who before were "on the fence" in the matter of adopting mechanical haulage and delivery, were quickly converted during the protracted hot spell last July, when 1,600 horses died of the heat in two weeks.

To Prevent Warping of Hardwood Doors

In the December issue of the AMERICAN CARPENTER AND BUILDER, W. E. Wares' inquiry for information regarding warped or twisted hardwood doors has been noted. The way to prevent trouble of this kind is clearly brought out in the following pithy and authoritative article, written especially for the information and interest it will be to our readers:

Oshkosh, Wis., Dec. 5, 1911.

Editor American Carpenter and Builder:

Since you started your campaign of "Better Building—And What It Means To You," we have received a large number of inquiries for our literature, and the carpenter and contractor realizing his "strategic position in the building world," seem deeply interested in the hardwood door proposition.

The progressive carpenter and contractor using hardwood doors for the first time, it is only natural that he wants "satisfaction" guaranteed, both to himself and his client.

The care of hardwood doors is a subject of deep interest to the manufacturer, and what is of interest to the manufacturer we feel would be of interest to you and your readers.

We enclose herewith an outline of our method for handling hardwood doors after they leave the factory, and trust it will prove a help to you along the line of "Better Building—And What It Means To You."

Very truly yours,

MORGAN COMPANY.

Care of Hardwood Doors

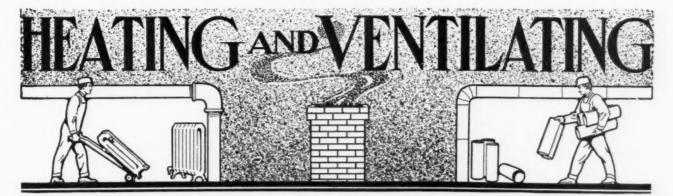
When unfinished hardwood doors are placed in a damp room they quickly absorb any moisture in the air, consequently expand or swell, and when they return to normal conditions (that is, when the moisture dries out) the doors are warped and the joints open. This can easily be prevented by a little precaution and care in handling the doors.

All doors are shipped "in the white" (unfinished), and moisture must not be allowed to penetrate the doors. As quickly as possible after receiving the doors have your finisher give them at least one coat of filler, and immediately after fitting the doors, paint or shellac the top and bottom edges. Front Doors. Before the glass is set, fill the doors and varnish with at least two coats of the best exterior varnish. Moulding around glass should be removed and two coats of shellac applied. Glass should be bedded in putty.

Don't hang your doors in a damp, freshly plastered building. This refers not only to doors, but to all kinds of fine interior finish. Mortar contains large quantities of water and until the moisture has dried out of the walls the building is in no condition to receive hardwood doors or fine interior finish. A manufacturer cannot be blamed for defective work if the goods upon which every care is exercised in the making are not properly handled at the building. Artificial heat to help dry out the building before hardwood doors and fine interior finish are put in, is always advisable

If the above suggestions are carried out, every standard hardwood veneered door can be relied on to stay perfect and prove a lasting thing of beauty. 11

11



Why It Pays to Choose a Warm Air Furnace By C. A. Eddy

in order to make satisfactory profits and stay in business for any considerable length of time. We assume most contractors realize this as good business and earnestly strive to furnish these two things to customers.

In connection with the warm air furnace proposition the contractor and builder who directs his efforts along these lines can be certain his customers will secure both service and satisfaction from this method of heating.

There are many reasons why warm air heating is desirable for the home. The main reason and one of the most vital points in its favor is its healthfulness. We all realize today the grasp which throat and lung diseases have on people in all parts of the country. This matter of health is one that is having the attention not only of physicians and medical men in general, but of societies devoted to civic improvement and the betterng of health conditions in our towns and cities. The matter of health being an extremely vital one, it can be seen that the heating system which insures healthful conditions in the home is the system that should be looked on with much favor. All doctors tell us us that systematic ventilation is necessary to good health.

Apart from the heating and ventilating of residences interest in the heating and ventilating of public buildings, such as schoolhouses, churches, etc., is being greatly aroused in the last few years. Parents are realizing the fact that the child confined for hours daily in the school room with inadequate ventilation causing bad air, is responsible for many deaths from tuberculosis, the children having been rendered susceptible during their school days and dving between the ages of twenty and twenty-five in the very prime of life.

A high grade warm air furnace supplies just the amount of warm air needed in addition to an abundance of heat. It is a fact, which many people do not realize, that less fuel is required to heat a building which is properly ventilated than to heat one which

HERE are two things-service and satisfac- is without systematic ventilation. The pure, warm air tion—that the contractor and builder must give delivered through the registers is constantly displacing colder and impure air. This cannot be accomplished, so we contend, when rooms are heated by steam or hot water radiators located in them heating the same air over and over.

The Question of Cost

Next to the healthfulness of the warm air furnace is the advantage of cost which is in its favor. Manufacturers of steam and hot water apparatus try to convince the public that it is much more economical to heat a home with their systems than with a warm air furnace. This has yet to be demonstrated, however. Practically all steam apparatus give the same amount and quality of heat in warm weather as in zero weather; yet in our climate, with such tremendous changes in the temperature, both health and comfort can be had only in a heating apparatus that can be regulated according to the weather. When it is considered too that it is far more expensive to install a steam or hot water apparatus than a warm air furnace, people who have an eye to economy as well as health should not hesitate for an instant about installing a warm air furnace.

There is one reason why warm air furnaces have in many instances heretofore been discredited. This is because so many furnace men and contractors take a job at a low price and then furnish any kind of heating apparatus so long as it is cheap. We all know that usually anything cheap can be bought for a low price. Nowadays we pay for what we get. It is no fault of the warm air heating system that many homes have been built in which cheap furnaces have been installed. The contractor who is in business to succeed will be sure of figuring a price for work that will cover the installation of a high-grade heating plant. If he has done this and chooses one of the many warm air furnaces which have reputations for giving satisfaction and the best of service he will make no mistake, but rather will furnish his customer with the kind of apparatus that will last him and heat his home satisfactorily for years to come.

In this connection it will undoubtedly be a good

plan to mention a few points that go to make up a good warm air furnace.

Earmarks of Good Furnace

The most important part of a furnace, its very soul in fact, is the grate. Upon its efficiency depends, to a big extent, the users' comfort and the economical operation of the furnace. The latest type is the ball-bearing grate. This is the easiest operating grade made, works on ball bearings same as a bicycle and gives the highest degree of satisfaction.

Another important feature in any furnace is the firepot. Upon its construction depends to a big extent whether the furnace proves to be a good transmitter of heat. When all essentials to efficiency are complied with fire pots are more valuable as heat transmitting surface than any other portion of the furnace. The most efficient firepot is extra deep—not only for the reason that it is desirable that it hold a liberal supply of fuel, but because of the added effective radiating surface obtained.

Correctly sized and correctly formed combustion domes are essential in the furnace to do its best work. Some domes are so large that the radiating surface is so far from the burning fuel as to make it comparatively ineffective. Others have contracted domes which do not provide sufficient area above the burning fuel to allow for good combustion. There is a happy medium in combustion dome construction which, when attained produces marvelous results. With reference to the above important features in a warm air furnace they are in almost every instance supplied by the high grade furnace manufacturers. Of course, the better types of furnaces differ in many essentials, but in the main features they are practically the same.

Cheap Furnaces and Faulty Installations

It is in the cheap furnaces, those constructed to sell at a low price where trouble will encountered. The manufacturer of this type cannot afford to choose the best material, he cannot afford to make a design that means higher construction expense, even though the latter is the one that gives the greatest satisfaction. His is a price proposition pure and simple.

Another claim which the radiator people make is that warm air furnaces cover the furniture, carpets and floors with dust. As a matter of fact the warm air furnace that is properly cleaned once every year or two will not produce dust. On the other hand radiators draw all the dust to them and deposit more or less of it on the walls and ceiling over them. A glance at the wall and ceiling near a radiator that has been used one season tells its own story.

Another reason why furnaces have been discredited in many instances has been due to defective installation, and also to the fact that furnace heating can be forced beyond its capacity to a much greater extent than any other system. This is characteristic of furnace heating, for by forced firing it is possible for the heating contractor to make a showing of heating a given building with a furnace of inadequate capacity for properly and continuously performing the work without regulating the furnace. This has led to the installation in many sections of the country of smaller and cheaper furnaces. The natural result has been a prejudice, by those who occupy buildings heated in this way, against the furnace system as a whole. Thus a feature of furnace heating which should be in its favor, that is, its superior reserve power as compared to other systems. has really operated against it.

Cheap competition work where a furnace of too small capacity is thrown into the cellar of the building and connected up in any old way without due regard to the proper proportioning of the piping system or for any other element necessary to right results cannot be anything else than a failure; and in such cases the furnace gets the blame. With a furnace of proper construction and capacity, with the piping correctly proportioned and with the other demands of insallation carried out in accordance with sound furnace practice, there is no other system of heating which is so practical, so successful or so satisfactory as warm air furnace heating.

Importance of Proper Piping

The claim is also made that a house of large size cannot be successfully heated with a warm air furnace. As a matter of fact the writer knows positively of hundreds of instances where some of the largest homes in the country are heated successfully with warm air furnaces. If a large home cannot be heated with a warm air furnace it is not the fault of the method of heating but faulty installation of the furnace. It is just as necessary that care be exercised in the selection of the kind of warm air furnace to be used in the home as that care be used in choosing the method of heating. A poorly made warm air furnace which is installed by a tinner or furnace man not capable of handling this class of work will in a great many instances prove unsatisfactory.

A warm air furnace is simply an apparatus for heating air. No matter how good the furnace, how perfect its construction, it can do nothing more than heat the air. The delivery of the air to the rooms to be supplied depends on the conduits provided. A furnace without proper conduits for delivering the air to a house can no more heat that house than a pumping station without water mains can supply a city with water.

To provide the proper conduits for the delivery to the rooms of the air which has been heated by the furnace requires a knowledge of the amount that will be required for each room, and the size and form of the conduit which will, under the conditions existing. deliver that amount. The shape of the conduit, the form of connections, the point where it will be most ng

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effectively delivered into the room will all make a difference, and require both scientific and practical knowledge to determine.

In many furnace-heated houses no attention whatever has been paid to this matter. It is very common for a man in building a house to specify that the general contractor shall have it "piped for a furnace." The contractor gives the order to the tinner who will do it the cheapest, regardless of his knowledge or lack of knowledge of the principles involved. The pipes are put in wherever they can be put with the least trouble, and often of sizes entirely too small to carry the volume of air required. They frequently contains bends and angles which will practically stop all flow of air through them. This is the reason that in many "furnace heated" houses there are rooms which cannot be heated.

The remedy is to have the plan for the entire system prepared by a competent engineer, and put in under proper supervision. It will be seen, therefore, that as the cause of unheated rooms in "furnace heated" houses is preventable, that this trouble is not a necessary result of the system of heating with warm air.

The trouble in heating rooms on the windward side of the house, where warm air is used, is due usually to neglect to provide an outlet for the air in the room. As already explained, the amount of air that can be sent into the room from the furnace is absolutely limited to the amount that can escape. The usual dependence for the escape of air from a room is on the outward leakage through walls and around windows, and this dependence invites failure. A high wind blowing against the outside of a room prevents this leakage, and so stops the inflow of air from the furnace. It is clear that positive provisions for the escape of the air are necessary to avoid failure to heat a room. This trouble can be remedied by providing an outlet for the air independent of the leakage. As this trouble is preventable, it is not a necessary result of the system of heating with warm air.

And as it has been shown that all the objections commonly urged against the system of heating with warm air, are due to either the faulty construction of the furnace or to faulty installation, it is evident that the system itself is free from these objections and they cannot be urged against it, but only against faults in construction and installation of apparatus for its use.

With these facts in mind, there is no reason why the contractor and builder who is anxious to give his customers the very best he knows should not favor and specify whenever possible warm air furnace heating. There is no question but that this system is meeting with greater favor today than ever before. Manufacturers are devoting the time and attention necessary to manufacture the very highest type of furnaces, and with the advanced knowledge gained by the heating engineer in the past few years the very highest grade of installations are being made.



Fooled It

Mike (in bed, to alarm-clock as it goes off)—"I fooled yez that time. I was not aslape at all.—Punch.

There is Something New Under the Sun

Cleopatra wore no rat,
Venus wore no congress gaiters,
Nero never cussed the 'phone,
Noah saw no aviators.

Caesar dodged no motor cars, Plato saw no melodramas, Sapho wore no harem skirt, Adam never wore pajamas

-Brush and Pail

Real Modesty

"An actor should be modest, and most actors are," said James K. Hackett, at a luncheon in Pittsburgh. "But I know a young actor who, at the beginning of his career, carried modesty almost too far.

"This young man inserted in all the dramatic papers a want advertisement that read:

"Engagement wanted.—Small part, such as dead body or outside shouts, preferred!"—Tribune.

The largest stick of pine timber ever shipped from Southern Mississippi, says the *Meridan, Miss.*, *Star*, has been brought to Meridan, Miss., by a team of 20 oxen. This stick, which was hand-hewn, measured 35 by 35 inches in the center and is 68 feet long. It contains nearly 650 cubic feet, measures over 7,000 board feet and weighs over 30,000 pounds. The price paid was \$185, but it will bring for ship mast about \$300 when delivered.

Sunken White Pine to be Salvaged

In the sunken white pine, with which the beds of the Menominee river and its tributaries are strewn, there exists a veritable mine of wealth, which some day will be salvaged and will yield its operators large returns, says the Duluth, Minn., News-Tribune. It is conservatively estimated by lumbermen that the streams contain fully 100,000,000 feet of the timber for which upper Michigan once was famous, but which now is all but exhausted, and it is mostly of the very finest quality, worth some hundreds of thousands of dollars. Sunken pine has been recovered successfully and profitably from various logging streams in southern Michigan, and on the Menominee range there is already talk of undertaking similar work in the north country.



More Shop Kinks

HELPS, HINTS AND INGENIOUS METHODS PICKED UP IN MANY YEARS PRACTICE IN CABINET CARPENTER AND WOODWORKING SHOPS

By Wm. C. Jasbury

ERE are some more brain-movements for the said person (not you) is some freak size. students of the millworking and carpentry class:

In Getting Out Stairs, I find the majority of carpenters are not, so to say, the most practical. In the first place, I consider the strings the most important part of a flight of stair. Now, if a flight consists of fourteen risers, for the wall string I take I by 10 inch by 16 foot board-or about one foot longer at each end than the flight of stairs. I sometimes use a pitch board to lay out the treads, or sometimes put a fence, or gauge, on my steel square and work from the top of the tread and face of the riser. The allowances for the tread, riser and wedges are all under or beneath the first mark. If the rough horses are up and plastered underneath, I house out the riser so as to drive the wedge from the top, which is just the reverse of the common way, because there is no way to get the

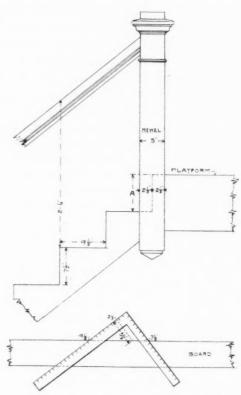
When Plastering is Done Be-fore Finishing Stairs, Arrange the Wedge to Drive from Top

Ordinary Way of Driving Stair Wedges from Bottom

wedge in from the bottom, or I should say, get a crack at it with the hammer. The illustrations show the wedges set both ways.

Height of Hand Rail at Newel. Here is a stunt. I think it is original. Whether or not it is, it is practical. Now, in the first place, the hand rail of an ordinary flight of stairs should be 2 feet 6 inches high, that is measured plumb over the face of the riser to the top of the hand rail (on the rake). The level rail should be 2 feet 8 inches. With these heights, while a person is standing or going up stairs, when in the middle of the tread, the hand rail is about 2 feet 8 inches high in either case, a normal height—unless the

Now, to find how high the rail is going to strike the newel before it is set, is something that often bothers the carpenter, especially if the man in the shop has not marked the floor, or platform line on it. Now, then, if the rail is 2 feet 6 inches plumb over the riser, which we will say 71/2 inches and with 91/2-inch tread, add the distance at A to 2 feet 6 inches; and from this subtract the rise 7½ inches. This will give the height



Finding Length of Newel and Height of Rail

at the top of the hand rail where it strikes the newel from the top of floor. Or, on the steel square take it thus:-

Place the 71/2 and 91/2-inch marks to the straight edge of a board and measure back half the width of the newel from the heel of square, then parallel with uary

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as I said before, added to 2 feet 6 inches and with the rise subtracted, gives 2 feet 4 inches as the answer. I use this rule almost daily.

To Obtain the Stair Angle. While out measuring a building for stairs, some time ago, I happened to be

WANTED THIS

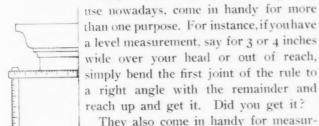
How to Measure an Acute Angle With the Steel Square

there on a Saturday; the men had knocked off at noon-half holiday. So when I came to the part where I was to get the angle of the wall to which the prospective stairs were to be fastened, I was up against it for the want of bevels, etc., to find the angle; which, by the way, was an acute. So I found a steel square (one of Mr. Woods' "Calculating Machines") with a 16-inch tongue and 24-inch blade. I put the heel as near the corner as possible, with the end of the tongue and blade

fitting snug up against the wall; then I measured how far the heel was from the corner and laid it out on the floor later.

To Find the Bevel for Staves. Here is a trick for laying out staved columns, which is worth any foreman's or turner's notice. For instance, you want to build, or stave up a column with any number of staves, no matter how many or how few, the rule works O. K. with but a small amount of figuring. Say we want a column 9 inches in diameter. I usually put in the same number of staves as the column is inches at its largest diameter. In this case it would be nine. Very well. I want to find the bevel to make the staves for a nonagon, or nine-sided figure. Of course, this could be worked with the steel square, but we are not discussing that handy tool just now. I take the 360 degrees in a circle and divide it by 9, which gives a quotient of 40; and this divided by 2 gives 20; this subtracted from oo leaves 70 degrees, which is the required bevel on the protractor. This will work any number and is positively accurate. To the best of my knowledge it has never before been in print.

The Jointed Measuring Rule. I find the 4-foot, 6-foot, 8-foot, etc., rules that carpenters

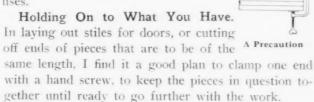


than one purpose. For instance, if you have a level measurement, say for 3 or 4 inches wide over your head or out of reach, simply bend the first joint of the rule to a right angle with the remainder and reach up and get it. Did you get it?

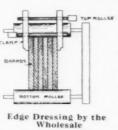
They also come in handy for measuring around a circle corner, as these rules Jointed Rule as are usually made of beach or maple, and

tongue to edge of board. This gives 5 inches, which, are therefore pliable. Then, again, they can be used in illustrating, explaining or adjusting them to the polygons, striking off circles, etc.; in

fact, they can be put to some very odd



To Size Boards of Equal Width. In dressing boards, say I by 10 inches, 2 by 10 inches, or similar dimensions on a two-sided planer, the planer man

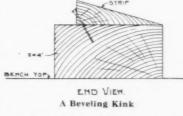


would run the two flat sides at nce; but to dress and size them on edge, he runs his planer-bed down to the required depth, and places the boards, or planks (on edge) side by side, say 6 or 8 of them, and runs them through all together. That is all well enough, but they are liable to

cant over, which will make the edges beveled. I take a pair of 18-inch hand screws and clamp the boards together, so as to make practically a solid timber, and remove the clamps as they approach the planer.

To Bevel a Strip. In beveling pieces to a feather

edge, such as hearth strips and sometimes in pattern work, I have seen fellows have trouble of their BENCH YOF, own, because the stuff was so thin



would hump up in the middle, etc. way to do it right, is to put it on a 2 by 4 a little longer than the strip. Place strip with the thin edge even with the edge of the 2 by 4 and by back toe nailing the strip, it can be dressed off very nicely.

Lumber Measure. Of course, there are many books on how to reduce square lumber to board feet, and perhaps it has been printed in this magazine, but I would not hesitate to say that there are not more than three out of every ten millmen or woodworkers who know how to figure the number of feet board measure. Allow me to give a formula. Say we have a timber 10 by 10 inches by 30 feet long. I say 10 times 10 = 100 inches, and that is equal to $8\frac{1}{3}$ square feet in each foot of length; therefore, multiply 30 by 81/3 = 250 square feet. Answer. Take any square 6 by 8, 8 by 8, 12 by 12 feet, etc. Now, then, if a board is 1 by 8 by 12 feet long, it has 8 square feet, because every 1-inch board 12 feet long has the same number of feet as its width in inches. But it is I by 8 by 14 feet, I say 8 times 14 = 112 divided by 12 gives 91/3 square feet. If the stuff is 11/4 inches thick, add a quarter more; if 11/2, add a half more, etc.

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Attractive Effects Using Wall-Boards

THE RANGE OF ADAPTIBILITY OF THIS CLASS OF BUILDING MATERIAL-WALL-BOARDS THE IDEAL SURFACE FOR BOTH TINTING AND PAINTING

ANYONE who is interested in the decorating of interiors is concerned, first and foremost, with one certain aspect of any material offered as a wall lining—Does it present a permanently smooth surface that can be tinted, painted, or decorated in any of the other popular modes, without fear of cracks or discolorations?

If it scores perfect in this test the decorating contractor is fully satisfied, and the owner is pretty apt to be well pleased.

Without question a large measure of the popularity of wall-boards is chargeable to this qualification they possess. When applied they present a smooth, even surface which fairly invites the interior decorator to come and put on his very best work. The surface is of such a nature that the tint or paint goes on easily; and the decorator is haunted with no apprehensive forebodings that within two or three months the surface will have checked, chipped or cracked, or become discolored, thus ruining all his beautiful work.

The manufacturers of the several kinds of wall boards have been quick to appreciate this important phase of the question relative to any material to be

Attic Room Finished Off with "Utility" Wall Board and made one of the Pleasantest Rooms in the House. Panels are Tinted Yellow and Wood Bands Stained Dark Brown

used in place of lath and plaster. Accordingly, in addition to their efforts—and they have been remarkably successful—toward developing a clean and sanitary, warm and durable, inexpensive and easily applied material, they have taken particular pains to keep the surface texture and appearance of their wall linings right.

Some idea of the range of work to which wall boards are adapted, together with some of the styles of decorative treatment, are illustrated in the photographs reproduced herewith.

Since wall-boards come in slabs or panels ready to



Display Room in Art Section of City "Department" Store Finished with "Compo" Board. Ceiling Panels and Side Walls are Painted and Stenciled

be nailed into place, it is natural that decorative schemes using paneling of various kinds, both for ceilings and side walls, should be common. For paneled work either band moulds or box beams cover the joints between the sections of the wall-board. Thus, no particular care is necessary in fitting the sections together, as the joint is covered anyhow.

Paneling is by no means necessary, however. The wall-board sections can be exactly fitted and the joints filled in with a special "crack filler," the wall or ceiling when finished presenting an absolutely smooth, unbroken surface.

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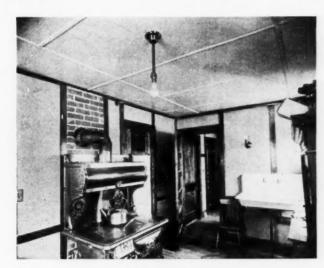
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Kitchen in House of E. R. Knott, Boston, Mass. Finished with "Beaver Board"

A room finished off in this way appeals to the decorator's pride in fine workmanship. There are hundreds of combinations that he can use for artistic results, and the choice is offered of any color scheme desired, carried out in any of the decorative materials.



Warehouse Office Finished with "Bishopric" Wall Board. Side Walls, Papered; Ceiling, Mission Panel Effect

He can put on wall paper, or fabric wall covering, pasting them directly to the wall-board. He can apply any of the flat wall paints, then ornamenting the walls with stenciled decorations or even with mural



Down Town Display Room of Chas. F. Lorenzen & Co., Chicago. Finished with "Utility" Board

paintings. Or he can put on the cold water tints, that are now so popular.

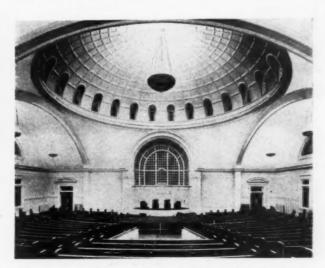
And best of all, no matter which of these methods of interior decorating is chosen, the decorator, as well as the owner of the building, has the assurance that the result will be permanently satisfactory. The work will not be marred, as the building settles, by plaster cracks, nor by discolorations arising from the wall lining.

All such troubles are avoided where a good quality of wall-board is employed. This material comes in panels ranging from 2 to 4 feet wide, and from 4 to 16 feet long, and is thus readily adaptable to all structural situations.

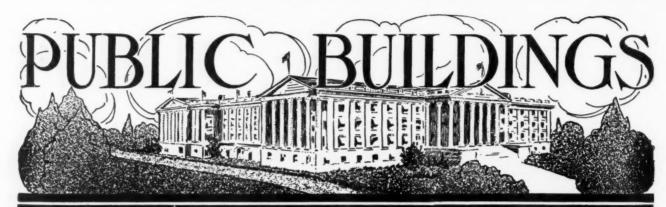
In the builder's effort to use only such materials as will prove permanently satisfactory to his clients, thus building up for himself a reputation for high grade, enduring work, this is a matter deserving special study. In fact, so important has it become that all the leading paint and color people have worked out special directions for the successful use of their interior wall coatings when applied onto the several wall-boards.



Living Room Finished with "Beaver Board." Home of Wm. Reynolds, Ft. Erie, Ont.

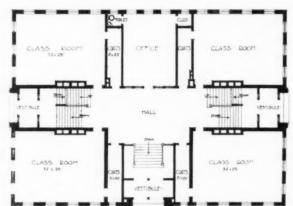


First Church of Christ, Scientist, of Chicago, L. E. Stanhope, Architect. Finished with "Deitzgen" Panel Board

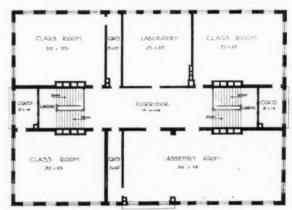


New School Building for Palatine, III. ARCHITECT'S PERSPECTIVE AND FLOOR PLAN DIAGRAMS OF NEW TWO-STORY BRICK SCHOOL HOUSE

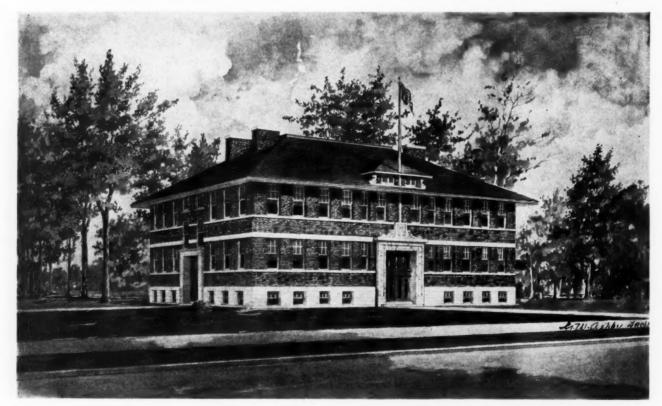
Henry H. Pahlman, Secretary of the Board of Education, School District 15, Palatine, Cook County. Ill., has advertised for sealed proposals for the crection of the school building illustrated herewith. Bids are to be opened at 8:00 P. M. Jan. 5th.



First Floor Plan



Second Floor Plan



Fine Modern Brick School Building, for a Chicago Suburb, Designed by Architect G. W. Ashby, of Chicago

More Timber than Thirty Years Ago According to Official Figures Growth Exceeds Demand in United States

R OBERT FULLERTON, the well-known lumberman of Des Moines, Iowa, recently delivered an address at Denver, Col., before the public lands convention. His topic was "Our Forest Resources, Consumption and Annual Growth." He reviewed the forest history of the United States; told what had happened to the forests through the successive decades. The figures given out created a sensation. It was shown by these figures that in 30 or 40 years timber suitable for lumber would be exhausted. It is now known that the first census was a poor guess. The following are some of the estimates which purport to be statements of the amount of standing timber in the United States: U. S. cruise of 1880..... 856,290,000,000 U. S. census, 1900......1,390,000,000 Prof. Fernow, 1902......2,000,000,000,000 American Lumberman, 1905.....1,907,000,000 Herbert Knox Smith, 1909.........2,500,000,000 Herbert Knox Smith, 1911.........2,800,000,000,000

Since the census of 1880, 900,000,000,000 feet of lumber have been manufactured, or 50,000,000,000 more than the timber in that year.

Mr. Fullerton said: "According to the discovery of the official figurer, Herbert Knox Smith, we have 2,800,000,000,000 of saw log timber still standing in the forests of the United States. The above statistics disprove the old proverb that figures can not lie, unless we accept the absurd theory that the annual growth of our forest trees is three times greater than our annual consumption of forest products. The increase in our forest resources from annual growth is very trifling, much less than the popular estimate.

How Is this for a Lift?

The accompanying photograph shows a hoisting apparatus in connection with an old automobile for motive power.

The building is located at Lincoln, Nebraska, and is being erected according to plans prepared by Woods & Cordner. It is a first class, fireproof building, 50 by 142 feet in size and will cost, when completed, about \$50,000. Mr. William L. Campbell is the contractor, and he deserves great credit for the way in which he has handled the work, which at this writing is nearing completion.

To successfully cope with the keen competition on buildings of this size, it is necessary that the contractor have up-to-date labor saving devices. To do this, Mr. Campbell saw from the first that he must have a hoisting machine. Now, to get the kind in general use for such work, would cost from \$800 to \$1000. As it happened, however, he owned an automobile of 30 horsepower that had served him for six years—the speedometer showed a record of miles that

would circle the world nearly one and one-fourth times; and as a globe spinner he thought it about time to give it a rest. Its value as a second hand machine, would not exceed \$400; so it occurred to him that this machine would furnish motive power for a hoisting apparatus; and he was not long in studying it out just how it could be done.

After removing the body of the car, he placed in its stead a platform, on which he built a light frame work for a shelter house; and covered it with galvanized iron.

He placed sprocket wheels on the rear axle and connected by chains to the sprockets on the axle of a large wooden drum, which he placed near the center of the car and anchored to its frame work. The steel

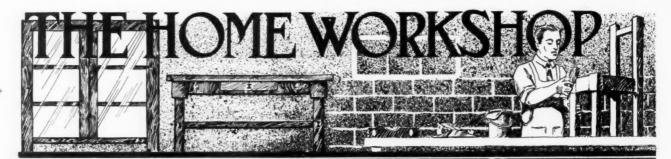


Builders' Hoist Run with Old Automobile

cable was attached to the drum in the usual way; and by hoisting the rear wheels clear of the ground, the power was transferred to the drum and sent the cages up and down, carrying brick, mortar and concrete and even the wood forms, etc., running well into the hundreds of thousands of tons and at a cost, Mr. Campbell says, not to exceed \$35 for oil and gasoline.

By letting the rear wheels down to the ground and disconnecting the cable, it can be run on the road the same as before being dismantled, as a pleasure car.

Mr. Campbell feels highly pleased with his reconstructed machine and is figuring to perfect it for running farm machinery where power is required.



Something the Boys Can Make

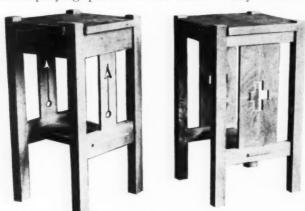
COMPLETE DETAILED DIRECTIONS WITH WORKING DRAWINGS BY WHICH THE INTERESTING PIECES ILLUSTRATED CAN BE MADE

By Ira S. Griffith

E offer this month some pieces suitable for the boys. One, the plant stand, will tax the ability of the average high school boy after he has had some preliminary tool practice. The other, the key rack or coat and hat rack, is intended to interest the grammar school boy and is exceedingly simple. Like the plant stand, however, it is intended that it shall be made after correct tool processes.

Plant Stands

The construction of the two stands shown in the accompanying picture is the same. They differ in



Plant Stand-A Favorite "Project"

their proportion of parts and in their ornament. We shall describe the making of but one. If the proportions of the other piece are liked better they can be got without much difficulty by comparing the two pictures and the working drawing of one of them. The height and size of posts and top of each stand are alike.

The two stands shown were made of black walnut by two students in Bradley Polytechnic Institute summer school, and were finished natural. If walnut is difficult to get, white oak quarter-sawed will make up very nicely.

The following pieces will be needed:

2 pieces, 3/8 by 31/4 by 101/2 inches, S-2-S.

1 piece, 7/8 by 73/4 by 121/2 inches, S--2-S.

6 pieces, 7/8 by 31/4 by 111/2 inches, S-2-S.

1 piece, 1 by 133/4 by 14 inches, S-2-S.

4 pieces, 11/4 by 11/4 by 241/2 inches, S-4-S.

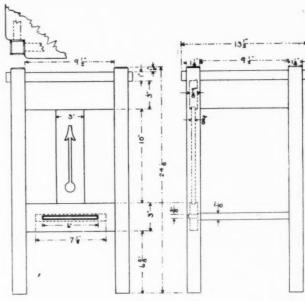
Begin work on the posts first. These are specified squared on four sides to width and thickness so that all there remains to do to them in order to square them up is to square the ends. The mill-marks, too, should be removed either by scraper or smooth plane and then scraped. Frequently this is left until the parts are assembled.

Next square up the rails, cutting them to length. Square up the top and then the two side panel slats, and finally the stretcher.

Set the posts upright in the positions they are to have relative to one another and mark roughly, as with penciled circles, the location of intended mortises. Now lay them down side by side on the bench, face-edges up, and even the ends and then locate accurately the ends of the mortises. Gauge the sides of the mortises and then chisel them.

Lay the rails side by side, face-edges up, on the bench and lay off and score knife lines for the shoulders of the tenons. Gauge the tenons and then saw them out.

Lay off and cut the mortises into which the slat ends are to be housed.



PLANT STAND

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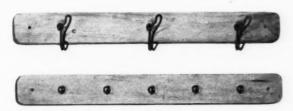
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Lay off and work the stretcher to length. These parts may all be scraped and prepared for assembling. Some workmen prefer to leave all scraping until after the glue has hardened. If one is careful in applying the glue, time may frequently be saved by doing most of the scraping before the parts are put together.

Get the clamps in readiness and, having first assembled the parts try to see if all fit properly, apply the glue and put together the two sides of the stand that have the slats in them. Allow the glue to harden over night, then place the other parts.

The top is to be lifted after the glue on these second parts is dry. Applying clamps so that they bring all the parts properly is a task that requires considerable experiment. This experimenting would better be done



Two Simple Pieces-Hat Rack and Key Rack

before the glue is applied, else trouble may ensue. To tell whether the frame is square or not, measure the two diagonals. It may be necessary to put a clamp on diagonally to bring the diagonals equal one to the other.

For walnut an excellent finish is obtained as follows: Apply a coat of linseed oil, boiled oil. Rub it into the pores, using a flannel cloth, and then wipe the surface clean. Use turpentine in the oil about half and half. Allow this to harden over a night or two, then apply a thin coating of shellac. Allow the shellac to harden over night, then sandpaper it smooth, using fine sandpaper. On this shellac apply a coat of wax. Polish this in the usual manner—the directions will be found upon the can label in case you are inexperienced, then apply a second coat in the same manner.

How to Make a Hat and Coat Rack and a Key Rack

The hat and coat rack and key rack are similar so far as the wood construction is concerned, the difference being in the different kind of hooks and the placing of them.

Secure a piece of some soft wood mill-planed on two surfaces to a thickness of three-fourths or seveneighths of an inch, having a width of two and onefourth inches and a length of eighteen and one-half inches.

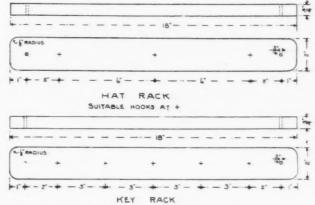
With the smooth plane remove the mill-marks so that the two broad surfaces may be left smooth and clean. Mark one of these surfaces with a pencil for a face-side. Plane one of the edges straight and square to the face-side, testing it by means of a trysquare and by sighting along its length with an eye. Mark this edge for a face-edge. This face-side and face-edge are

the two surfaces from which all testing is to be made hereafter.

Set the marking gauge at two inches and, keeping the gauge head against the face-edge, score a line along the grain to indicate the width the piece is to have when finished. Plane to this line, testing frequently as the line is approached, so that the edge may be square when the line is reached.

Place one end so that it shall be square to both faceside and face-edge when tested from these with the trysquare. From this squared end measure the desired length, eighteen inches, and with the trysquare and knife score a line around the piece, or at least across the face-side and face-edge. Saw a little outside this line, then plane to it carefully.

Lay off the corner curves next. The first thing is to find the location for the divider point when making the arc of the curve. Beginners usually set the dividers to the radius wanted, which so far is all right, then try to locate the center by guess, which is unwise. To locate the centers quickly and accurately, place the piece on edge on the bench, and, with the dividers set to the radius required for the arcs, mark a short line at either end of the piece as near the intended arc's center as can be estimated, keeping one leg on the bench top. Repeat with the second edge down. Set the piece on end, and in a similar manner score divider lines across the lines just made. The dividers may

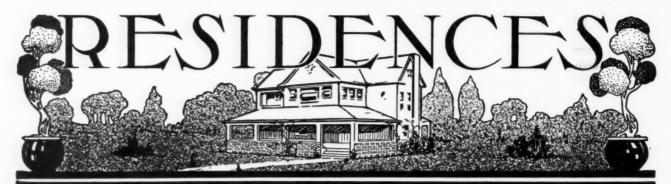


now be set with the fixed point at the crosses formed and the final curve drawn.

Round off these corners, using a wood file. Be careful to keep to the line and to have them square to the face-side when completed.

Gauge a very light line down the center of the piece and on it measure off the locations of the holes. The two end holes are to be made with a three-sixteenths inch bit and through them the screws are placed to hold the rack to the wall. These holes are sixteen inches apart, the distance at which studding in a wall are set. By tapping on the plaster one can tell by the sound where these are. Where no studding are the sound is hollow.

The hooks are to be got at the hardware store, and are known as coat hooks for one and cup hooks for the other.



Complete Plans for Model Dwelling

ARCHITECT'S SCALE DRAWINGS FROM WHICH THE NINE-ROOM, HIP-ROOF HOUSE ILLUSTRATED HERE-WITH MAY BE BUILT

A HOUSE of modern arrangement, of a style very popular at the present time, and containing a very large amount of useable space, considering its size and cost, is illustrated herewith. This is a full two-story and basement house, 28 feet wide by 38 feet long, not counting the front porch. The building is designed on rectangular lines, which have proved most economical and satisfactory.

On the main floor there are five rooms. These, however, open together with wide colonnades and cased openings so that there is no impression of cramped quarters to anyone seated in either reception room, parlor, living room or dining room. The busi-

ness end of the house—the kitchen and pantry, is conveniently situated. In fact, this is a design that will appeal to the house-wives.

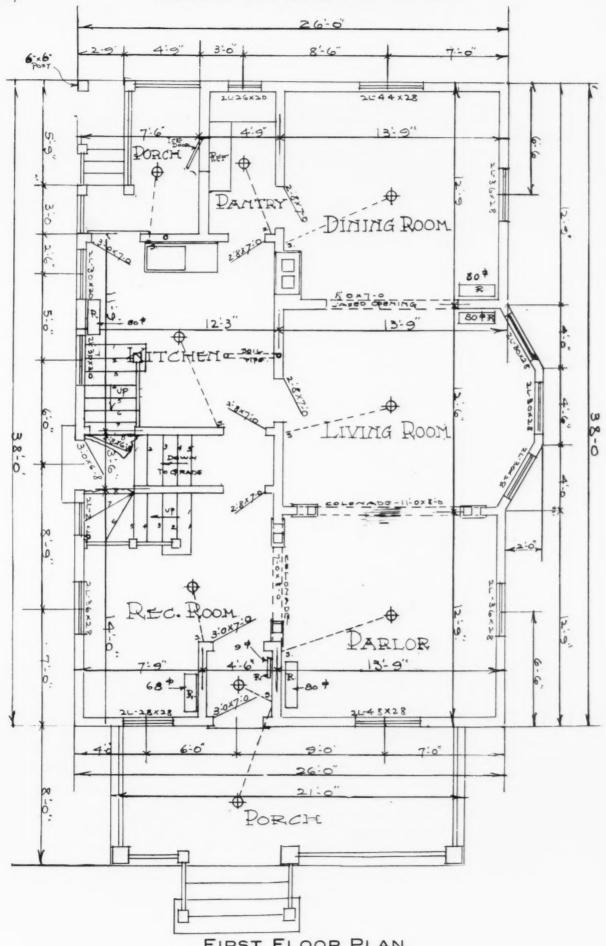
On the second floor are four good sized bedrooms, also a very large sleeping porch. The bathroom is on this floor, opening from the square central hall. A liberal supply of clothes closets is provided.

The basement is cement finished and is nicely arranged for laundry, basement heating plant, etc.

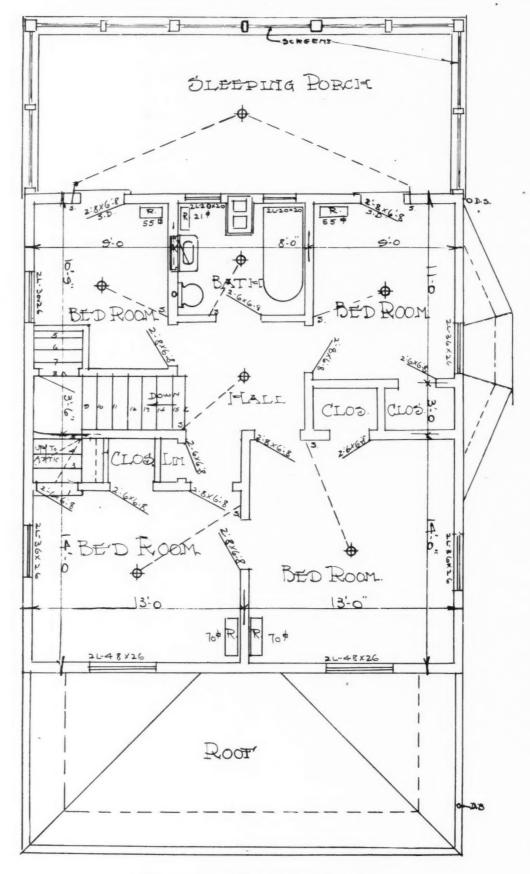
This residence constructed of good grade materials and completely finished and equipped is estimated to cost \$4,000.



Very Attractive Bungalow Cottage Designed for A. J. Vogelberg, Faribault, Minn. COMPLETE WORKING DRAWINGS FOR THIS HOUSE ARE PRESENTED ON THE 5 PAGES FOLLOWING.

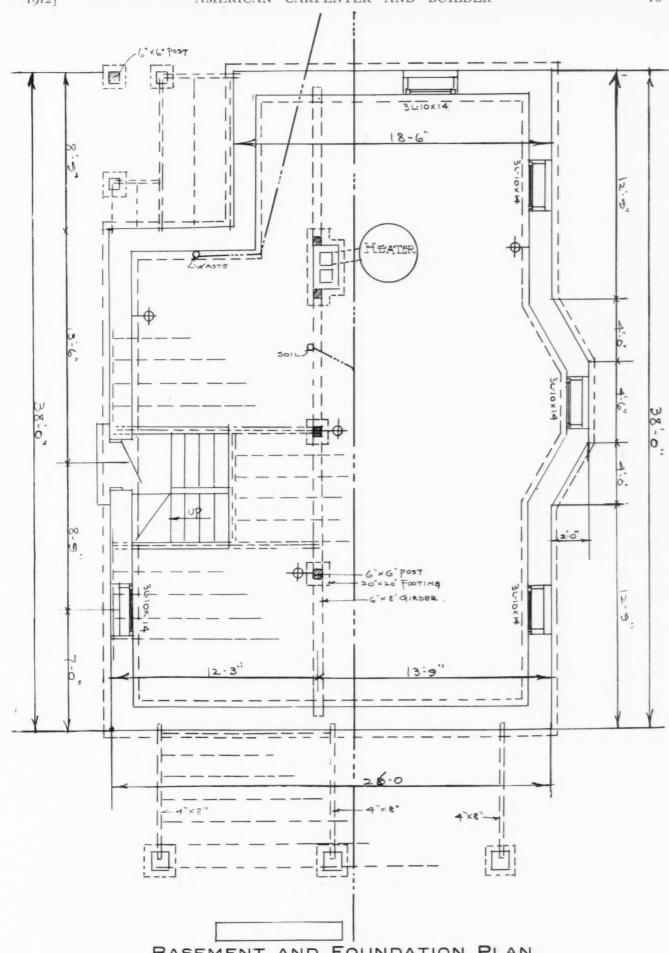


FIRST FLOOR PLAN
(House Shown on Page 70)



SECOND FLOOR PLAN

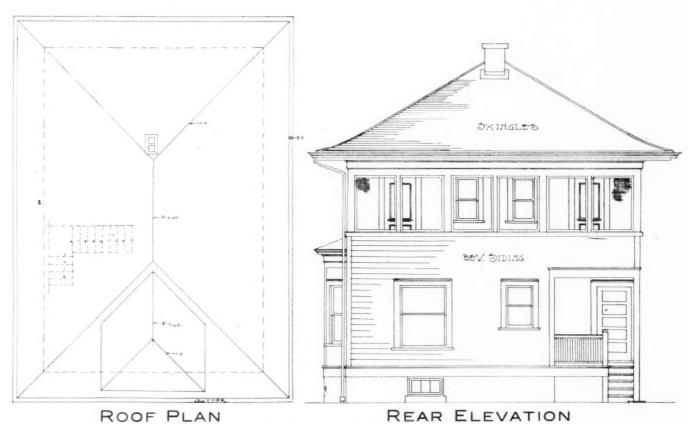
(House Shown on Page 70)



BASEMENT AND FOUNDATION PLAN (House Shown on Page 70)

DECTION





(House Shown on Page 70)





RIGHT SIDE ELEVATION (House Shown on Page 70)



Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

What Makes Bay Windows Leak?

To the Editor: St. Paul, Minn.

I would like to hear from some of the members, what is the cause of bay windows leaking when they are built against side of house, roof not reaching over first floor. Is it because flashing is not put on high enough against side of house before shingling bay roof and then putting the siding against the shingles? Or what? How is it to be constructed to be rain-proof? One may be rain-proof for some years, and even after an examination everything be found in good condition—yet all at once develop leaks.

With best wishes to the American Carpenter and Builder. A charter member,

A. J. Metzger.

Stucco Work that Won't Craze

To the Editor: North Platte, Neb.

I am sending you pictures of two hollow-tile, stucco-covered schoolhouses, which I recently built. They have a single class room and two cloak rooms. Basement has hot-air heating plant. Toilet rooms are in the basement and are equipped with air pressure and double cesspool system. Basements are made of concrete 7 feet high to joist; then 8-inch hollow tile, having a double air space, are laid for the walls. These are plastered direct on inside, and stucco is applied on outside.

In regard to stucco crazes asked about, will say I have never had any trouble of that sort. To prevent this there are, of course, many things to consider. First, if your ground work is tile, brick or cement, allow plenty of time for building to settle and mortar joints to dry. Use plenty of clean water to wash the walls and clean them of all surplus material, which will cause the stucco to crawl.

Mix only such quantity as can be applied in moderate time. For first coat I use 1 part cement, 2 parts clean sharp sand, and a very little lime which has been slacked 30 days. A half inch coat of this is applied and immediately followed with half inch of one part cement, 2 parts sand and fine gravel. Cast with as large a paddle as could be easily handled. Then every

Structural Tile School House before Stucco is Applied

hour, by the use of force pump and hose, this should be wet, care being taken not to use too much water at once until thoroughly set. After the initial setting, pump water on in



Stucco Covered Hollow Tile School Building

enormous quantities every 2 or 3 hours for several days. In other words, keep the wall wet all the time. If this is impossible, keep the work shaded for 6 or 7 days to give uniform color. This must be done, especially in extreme hot weather.

J. E. Pile.

Advocates Porous Concrete Blocks

To the Editor: Smithtown, Long Island, New York.

In reference to the cement block industry, I would like to give my ideas and also get the ideas of other readers on these points: We are told that the average block is not waterproof and needs a waterproofing composition added. Is this a fact or is it because the blocks being dense and cold condense the moisture that is in the inside of a room?

What I think would make good always would be to make a block of 3 of sand 3 of sifted hard clinker or breeze and 1 of cement. This would make the block porous like a brick, it would be lighter and would take nails well. The inside surface could be made rough so as to receive the plastering direct as in the case of a hollow brick wall.

The outside surface I would prefer also to be left rough to receive a good coating of stucco, preferably in two coats with the waterproofing compound added if necessary. This would then be adapted to all the good points of brick, viz., a nearly hollow wall, porous, as light and as strong as one cared to put cement in, and would be waterproof, whereas bricks are not. Such a wall would have all the strength of a solid brick wall.

Hope to hear other readers' views.

H. OLIVER.

To Plumb a Tapering Tower

To the Editor: Eaton, Ind.

Will someone please give the best way to plumb a square tower which tapers toward the top? It is too windy for a plumb-bob.

C. W. CRUEA.

How to Frame the Porch Soffit

Goshen, Ind. To the Editor:

I have found difficulty in building porches in placing the columns so that they are perfectly perpendicular. In starting the frame work, should the top and bottom be the same distance from the house, so that a round column will stand perpendicular when completed? E. W. HOSTETLER.

Answer: How far out from the building to frame the

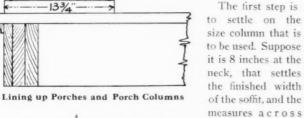
porch soffit so that colonial, or tapered columns will set plumb under the finished soffit, is a problem that many builders fail to understand. It is a very common error and in

fact more common than otherwise. Time and again we have seen carpenters frame the

soffit on the porch floor, using the same outer dimensions as for the frame work of the sills, and then raise it up to its place and temporarily shore it; and then finish the roof and cornice work. Afterwards they set up the columns to find that the same will not set plumb under the soffit.

To begin with, the finished soffit should be no wider than the neck of the column, and the carpenter should know just what that is, and lay out his work accordingly. If he does not know, he should wait until he does, or if he cannot lay it out, he should turn the job over to some one who can.

> The first step is to settle on the size column that is to be used. Suppose it is 8 inches at the neck, that settles the finished width of the soffit, and the



the base is 131/4 inches, which is a difference of 51/4 inches between the top and bottom; this divided by 2, gives 21/8 inches, which will be the distance back of the outer edge of the porch sills, to build the rough frame work of the soffit. Then when the facia of the soffit is finished and the porch base is put on, the same difference will remain as shown in the A. W. Woods.

Wants to Know About Howe Truss Bridges

Mendocino, Calif. To the Editor:

Will some readers of the American Carpenter and Builder who have had experience in building a Howe wagon-road bridge, please send in a detail drawing of same, or inform me of a good text-book on the construction of a wooden Howe bridge? What do they mean by a "modified Howe truss"? P. MAXWELL.

No-Slip Hammer Handle

Bushnell, Ill. Some time ago I saw in the correspondence page how to

fix a hammer handle to prevent slipping in the hand. The best thing I have found for this is to get some bicycle tape 1/2 inch wide and commence to wrap handle 5 inches from end, letting the tape lap 1/8 of an inch. This makes small ridges and prevents slipping and does not hurt the hand.

J. B. ROBERTSON.

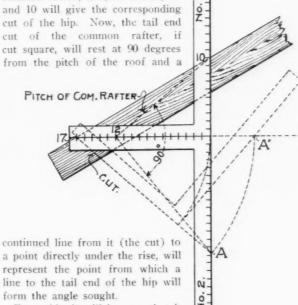
Tail End Cut of Hip

To the Editor: Center Harbor, N. H.

Kindly ask Mr. Woods to answer the following question: If the foot of the common rafter is cut off square, what figures on the steel square will give the cut on the foot of the hip? H. J. LEIGHTON.

Answer: We presume the cut desired is the end cut of the rafter on which the facia is nailed and more properly

called the tail end cut. We will take for an example a 10-inch rise (5/12 pitch). Then 12 and 10 will give the seat and plumb cut of the common rafter; and, of course, 17 and 10 will give the corresponding cut of the hip. Now, the tail end cut of the common rafter, if cut square, will rest at 90 degrees from the pitch of the roof and a



From this, it will be seen that it is a rather difficult thing to get at, since the proportions to take on Getting Tail End Cut of the steel square are an unseen

factor; because they are over the line in another latitude, so to speak; and they must be reckoned from that line which is the same as the seat cut laid off from the tail end of the rafter and all below that line represents what we term the co-pitch, which is at right angles from the roof proper. Thus 17 and 10, as shown on square No. 1, will give the dividing line between the two pitches and 17; and the point intersected by the co-pitch of the common rafter, as at A on square No. 2, will be the proportion to apply to the dividing line, to obtain the desired angle.

For proof, just suppose 17 a pivotal point. Then take hold of the blade and flip it over, and with the tongue resting on the line from 17 to A, it will be seen that the dividing line will intersect the blade at A1 and the tongue will give the cut. But it must be remembered that the angle forming the cut is at a point in the middle of the back, or top end of the rafter, and to find the proper place at the sides, it may be obtained from this point with the same proportions that give the side cut of the hip, as the angle is the same.

A. W. Woods.

Ideas for Light Tool Chest Wanted

To the Editor: Red Wing, Minn.

As I am a subscriber to the American Carpenter and Builder, and one who thinks it is one of the best building papers published, I take great interest in the correspondence columns. I would like very much to ask what way is the best to make a carpenters' tool chest. I want one that is not too heavy and large, but convenient for the different kinds of tools. I have a chest, but it is pretty heavy to move around and I thought maybe somebody had a better plan than mine. I take this way to find out their way of making one.

C. A. Clark.

In or Out?

To the Editor: Cove, Oregon.

I have taken your paper only a short time, but read its pages with interest and find many helpful things. I find that many of the brother carpenters put in subjects for discussion; so I have one. It is which way to hang a sash door—putty side in or out?

I will give my opinion also to see how many will agree with me.

I am not an old experienced head; but have always hung them putty side in and never had any complaint until the other day. The complaint was that the rain would run down between the door and the glass, and rot the door. In some of the doors we get, a glass bead is used instead of putty. I don't know what to do with such doors since this has come up.

My reason for thinking that a sash door should be hung putty side in is that a front door generally carries some kind of a moulding or fancy work. Surely this is not put on the inside, and this puts the putty or glass bead on the inside. So I put the sash doors all the same so they will correspond.

Some sash doors have a frosted glass and it you will notice they are frosted on the reverse side from the putty. Now if they were putty side out, you could see in, but not out.

Now I don't think that rain will run down between the glass and the door and rot them any quicker than it will in around the panels and rot them. Then for looks there is generally a curtain on a sash door and they look a little better with the sash mould out instead of putty.

R. N. ALLEN.

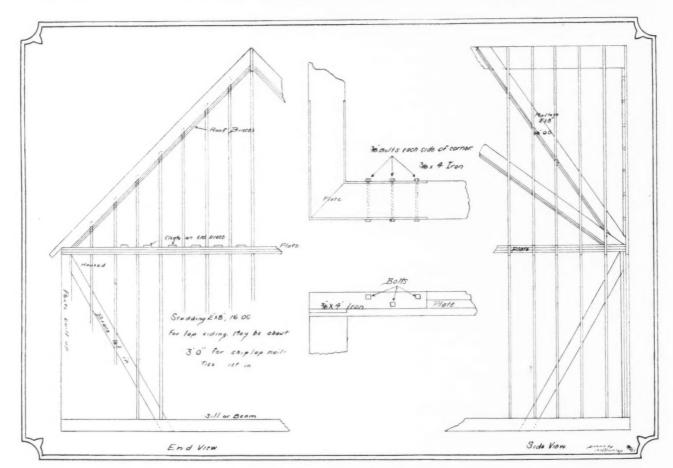
Plank-Frame Barn Construction

To the Editor: Mentone, Ind.

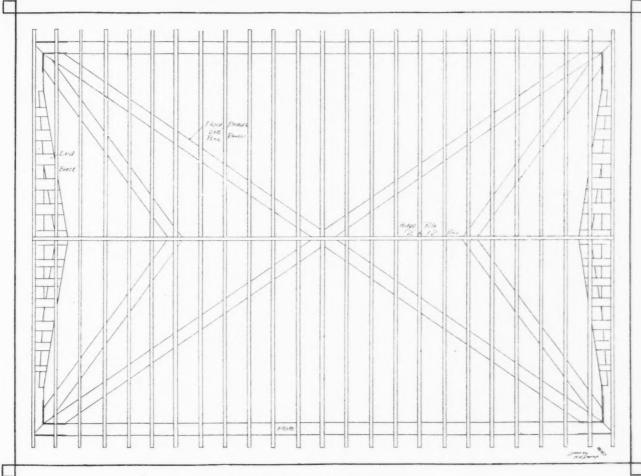
I have been a reader of your valuable magazine since its first issue, being one of the charter members. I am sure I have been benefited by its teachings and have read with much interest the different talks on the many topics by the several correspondents—especially the driving of shingles, the hanging of doors, and more perhaps, the subject of barn construction.

In my forty years experience I have made some very good house and barn jobs. Formerly the barns were of square or heavy timbers; but recently I have been building more plank frames (of any size required). They give perfect satisfaction and seem to me the best yet for economy, neatness in appearance and durability, doing away with the old-fashioned barn raising, which required fifty or one hundred men.

I am submitting only the roof plan with half section of end elevation, with corner braces, of such a barn. These frames can be built up to 44 ft. wide by 100 ft. long (which would necessitate an extra brace than is shown in roof plan) with perfect safety, making the barn like an egg shell inside with not a beam or a single thing in the way. I usually double the ridge pole, giving a little more strength. I have built barns of this system of support requiring 65 squares of



Some Details of Plank-Frame Barn Construction



Roof Plan, Showing System of Bracing

slate to cover, and after six or eight years and longer they have been perfectly straight and right.

I do not claim for these roofs that they are the cheapest; for it requires labor and skill to frame them; and much of the work of making the braces is hard to get at. But the support is complete and makes a perfect job.

If the plans interest you and you think they would benefit any of the readers of the American Carpenter and Builder you can give them a place.

L. W. Dunlap.

Glue from Orange Shellac?

To the Editor:

Mountain Home, Ark.

I take this means to express my appreciation of the little "spiel" by Burr Gunsaullus in the December issue.

I want some information about glue—the best glue and the best means of preparing and using it. I am informed by a painter and wood finisher that a superior glue can be made from orange shellac; that it is extensively used by patternmakers and will resist considerable moisture. If this is true, give me the formula in your next issue. Chas. Christian.

The Bench Question Answered

To the Editor:

Beaver Crossing, Nebr.

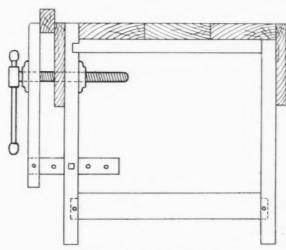
I notice in the June number that Mr. Venning asks for information for building a work bench; and, as I take it, the question has never been answered. It seems that his trouble is in the bench ieg pulling away from the bench top, which is very plausible, for when a narrow piece is put

in the vise for edging up, the strain is directly on the leg of the bench.

Two good suggestions were given in the September and October numbers, by Mr. Jewell, of Wisconsin, and Kellogg of Idaho, but neither gives Mr. Venning a direct answer to his point of trouble. This I have endeavored to do, as shown by the accompanying drawing. In this it will be seen that the strain is on the clamp proper, as the bench leg comes to the top of the bench.

Believing this will be of benefit to Mr. Venning and others, I would thank you to publish same.

J. W. LATIMER.



To Keep Bench Leg from Pulling Away

More About Degrees

To the Editor: Welland, Ontario.

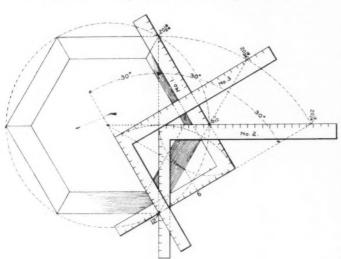
I notice in the November number of the American Car-PENTER AND BUILDER, on page 42 and 43, there is some information given about framing by degrees, which I think is very useful.

I understand the figure on page 42, where the writer gives the different pitches for roofs, which seems to be alright, but a little further on he says the angle for a hexagon is 30 degrees. I would suppose the side bevel to be 120 degrees and the miter 60 degrees. In figuring out polygons, I always divide 360 (the number of degrees in a circle) by the number of sides in the polygon and subtract the answer from 180 (half the circumference of the circle), and the answer gives the side bevel for the polygon. When we get this angle, the one-half of it gives the miter. Now, if we divide 360 by 6, it gives 60 for an answer, and 60 taken from 180 will leave 120 for the side bevel; so 60 would be the miter.

Since reading what I have referred to, I came to the conclusion that there is something about degrees I do not understand, and I would like an explanation.

JAMES WILSON.

Answer: Mr. Wilson's diagnosis of the case is right; but he makes unnecessary work of it. It depends on how one



Degree Figuring with the Steel Square

looks at it; and while Mr. Wilson's vision is alright, he could see better if he had, so to speak, a change of glasses. Degrees are a changeable thing, depending on from which point the calculation is based; therefore 30 degrees is 60 degrees and vise versa. It must be remembered that our talk is always along the line of what may be accomplished with the steel square.

Now, everybody knows that there are 360 degrees in a circle and in one-half of it there are 180 degrees; in one sense of the word, 180 degrees is not an angle at all—simply a straight line, just the same as the straight edge of a board, and from this we make our calculations with the square as follows:

Divide 180 by the number of desired sides, say it is 6, the quotient will be 30, and that represents the degrees on the square to use; and working from 12 on the tongue, would pass at 6.93 (6 11/12) on the blade; the blade giving the cut. These proportions on the square at once become the foundation for a calculation basis for developing all of the cuts, lengths and bevels contained in the roof for any pitch or size of building desired. But we will not dwell on that part of the subject here for two reasons:

First, it was not called for in the question, and second, it so happens that we have already fully covered the subject in our regular article for this month. If you want it, go to it.

Now, going back to the 60 degree method of obtaining the miter, using 12 on the tongue as a starting point, the angle intersects the blade at 20.78 (20 19/24), and the tongue will give the miter, but in so doing the calculation basis is practically destroyed, because the standard of measurement is reversed thereby crippled in complications. To make this point more clear, see the accompanying illustration. The 30 degree angle intersects the blade at 6 11/12 and the 60 degree at 20 19/24 on square No. 1.

Now suppose the figures giving the 30 degree were pivotal points, just flip the square over and it will lie in the position of square No. 2; and it shows that the blade coincides with the miter. Again the 6 11/12 is to the side of the hexagon as 12 is to the inscribed diameter; thus the inscribed diameter in the illustration is two feet, then 2×6 11/12 = 13 5/12, which represents the length of the required sides.

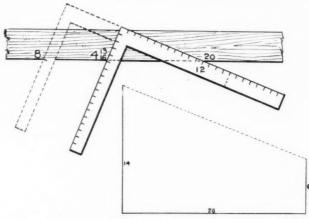
Now, taking the 60 degree angle, suppose 12 on the tongue of square No. 2 is a pivotal point and we take hold of the end of the blade, and raise it up until the tongue rests in line with the center, as shown in square No. 3; it will be seen that 20 19/24 will be in line with one side of the polygon and that the tongue coincides with the miter, but in so doing, we have lost our calculating basis as before mentioned.

Suppose the polygon was an octagon, then the miter line would be at 221/2 degrees and would fall at 4.97 (5) on the blade. By Mr. Wilson's way of looking at it, the miter line would be 671/2 degrees and would fall at 28.97 (practically 29 inches), which is five inches longer than the blade, thereby causing a reduction of the parts to use, which further complicates matters in the way of calculation basis. By the other method, the more sides in the polygon, the lower the degree angle falls on the blade; as for instance, say the polygon has 360 sides, then the degree would be one and the angle would fall at .2095 (practically 5/24 of an inch) and represents the length of the sides per foot of the inscribed diameter, while by the other method the degree line would fall at 687.48 inchs or 57 feet 31/2 inches, which is 55 feet 31/2 inches longer than the blade, which, to say the least, would be a little bit unyielding. A. W. Woods.

Shed Roof Rafter Again

To the Editor: Farmer, Wash.

I see in the November number of your valuable paper, that Frank Rubrick of Graff, Neb., is a little puzzled about a shed roof. I am enclosing a sketch of the method I use. Take



the difference between the two sides on the tongue, and the span on the blade; mark both sides. Then slide the square down to the figure 12, keeping the blade to the lines; and the figure on the tongue gives the number of inches rise per foot run. Having found these proportions, then step off in the usual way.

H. B. PARK.

The Union Label

To the Editor:

St. Bernard, Ohio.

When you earn a Union Dollar And spend it, make a "Holler" For the little Union Label, That denotes a thing is fair. If the merchant can't supply it, Pass the article—don't buy it; That's the only way a union man Can prove he's "on the square."

In the crowded city dwelling
There the atmosphere's ill smelling.
And the microbes fairly revel,
Sending death both far and near;
Where the sweatshop slaves are working
And diseases foul are lurking,
You will never, never find,
The precious union label there.

Here is something to remember If you claim to be a member Of a union, you can prove it To the world no better way—Then to hustle all you're able For your friend, the union label; For it means self-preservation. That's as certain as the day.

LOUISE OSWALD.

Suggestion Wanted

To the Editor:

New Baltimore, Mich.

I would like to know through your valuable paper how to make a truss for a 50-ft. square dance hall, open all around. The roof is to have four hips. The orchestra box is 12 ft. square and is to hang from the roof in the center of the hall.

HENRY HABARTH.

Table for Heights of Window Head Segments

To the Editor:

Paterson, N. J.

Enclosed you will find a table for height of window head segments (from spring of arch to crown of arch of windows), where the radius is the width of a brick opening plus one foot. The writer has found this of great value, as it saves the time figuring this when making millwork details.

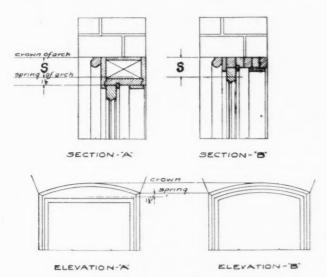


Diagram Showing Parts in Segment Head Windows

and am satisfied that this would prove of value to your magazine.

The sections and elevations shown in the illustration give the reader the relative location between the crown of the arch and the spring of the arch. Section and elevation "A" are for a window with a circular head frame and square head sash, section and elevation "B" are for a window with a circular head frame and sash. "S" in the table is the height of the segment.

Brick Opening	Radius	S	Brick Opening	Radius	S		
1' 0" 1 2 3 4 4 5 6 6 7 8 9 10 11 2' 0"	2' 0" 1 2 3 4 5 6 7 8 10 11 3' 0"	.77" .86 .96 1.07 1.17 1.28 1.39 1.50 1.61 1.72 1.83 1.95 2.06	7" 8 9 10 11 7' 0" 1 2 3 4 5 6 7	7" 8 9 10 11 8' 0" 1 2 3 4 5 6	9.02" 9.15 9.29 9.42 9.55 9.68 9.81 9.94 10.07 10.20 10.34 10.47		
1 2 3 4 5 6 7 8 9 10 11 3' 0" 1 2	1 2 3 4 4 5 6 6 7 8 9 10 11 4' 0" 1 2	2.18 2.30 2.42 2.53 2.65 2.77 2.90 3.02 3.14 3.26 3.39 3.51 3.63	8 9 10 11 8' 0" 1 2 3 4 4 5 6 6 7 8 9	8 9 10 11 9' 0" 1 2 3 4 5 6 7 8 9 9	10.60 10.73 10.86 10.99 11.13 11.26 11.39 11.52 11.65 11.79 11.92 12.05 12.18 12.31		
3 4 5 6 7 8 9 10 11 4' 0" 1 2 3 4	3 4 5 6 7 8 9 10 11 5' 0" 1 2 3	3.76 3.88 4.00 4.13 4.26 4.38 4.51 4.64 4.76 4.89 5.01 5.14 5.27 5.40	10 11 9' 0" 1 2 3 4 5 6 7 8 9	10 11 10' 0" 1 2 3 4 5 6 7 8 9	12.58 12.71 12.84 12.97 13.11 13.24 13.37 13.50 13.63 13.77 13.90 14.03 14.16		
5 6 7 8 9 10 11 5' 0" 1 2 3 4 5	4 5 6 7 8 9 10 11 6' 0" 1 2 3 4 4 5	5.52 5.65 5.78 5.91 6.04 6.17 6.29 6.42 6.55 6.68 6.81 6.94 7.07 7.20	11 10' 0" 1 2 3 4 5 6 7 8 9 10 11 11' 0"	11' 0" 1 2 3 4 4 5 6 7 8 9 10 11 12' 0"	14.30 14.43 14.56 14.69 14.83 14.96 15.23 15.36 15.49 15.63 15.76 15.89		
6 7 8 9 10 11 6' 0" 1 2 3 4 5 6	6 7 8 9 10 11 7' 0" 1 2 3 4 5 6	7.33 7.46 7.59 7.72 7.85 7.98 8.11 8.24 8.37 8.50 8.63 8.76 8.89	11 0 2 3 4 4 5 6 6 7 8 9 10 11 11 12' 0"	1 2 3 4 4 5 6 6 7 7 8 9 10 11 13' 0"	16.15 16.29 16.42 16.55 16.68 16.82 16.95 17.08 17.22 17.35 17.48 17.61		

JOHN S. EDMUND.

To Scribe Base of Columns

To the Editor

Durand, Mich

Here is something I would like to have answered through your paper, and that is how to scribe the base of a round porch column to enable one to cut it so as to fit the slant of the porch floor, which has a drop, say, of three inches in eight feet. If the column was square, it would be easy enough; but being round I am unable to mark it and get a good fit.

WM. VREELAND.

Answer: Difficulties of this kind may be overcome by constructing a temporary miter box with the desired angle cut in same, then place the column in it to the proper position and use the saw as you would in any ordinary miter box.

EDITOR.

We Feel That Way About It Too

To the Editor: Mason, Neveda.

I wish to thank you for the copy of Radford's "Details of Building Construction," which I recently received. This book alone is worth more than the price asked for it and the American Carpenter and Builder together. It is a valuable addition to any one's library and should be in the possession of every man in the business.



New Bank Building and Drug Store, Mason, Nev.

I am enclosing two photographs showing some of my season's work. The one (not shown here, Ed.) is a general store building 38 feet by 80 feet owned by the Mason Mercntile Company. It is modern in every way, with plate glass and Petz store front construction. The other is the First National Bank Building and the Mason Valley Drug Co. store, of which Mr. O. H. Bolt is the proprietor.

Wishing you continued success I am,

A. W. FRAZER, Architect and Builder.

Board Feet in Logs

To the Editor:

Hat Creek, Wyo.

Will some one give a rule for figuring board feet in logs, tapering from top to larger at bottom.

I am a subscriber and value the paper very highly.

W. E. JEWETT.

Answer: The hand book gotten out by the Forest Service on log rules, shows forty-five different methods for measuring logs, each of which differs in some respect from the others. In the Southern and Central section of the country the rule most generally followed is the Scribner-Doyle, which is based on the number of square-edged inch boards of standard width a log will make, and in scaling by this rule measurement is taken at the small end of the log inside of the bark. Or if it is a longer log to be cut in two before sawing, the measurement of both ends is taken and the average diameter of the two makes the scale measurement for the butt log.

Just what rule is most used in your state we don't know There is a rule known as the ¾ rule, said to be used in Maine, Massachusetts and New Hampshire, and formula on which it is based being as follows: Deduct ¼ the diameter at the small end of the log inside of the bark for saw kerf and slabs, square the remainder, multiply by the length of the log and divide this last product by 12 for the contents of the log in board feet. There is another rule, known as the Orange river rule, used in Texas, based on the following: Multiply the square of the diameter of the small end of the log inside of the bark by the length of the log, and divide the product by 30. The result is the contents in board feet.

You will observe that in all of these rules the figures are based on the measurement taken at the small end of the log inside the bark. By keeping this in mind, and getting a copy of the table of rules followed by the purchaser of your timber, you can easily estimate the amount of timber before it is hauled.

Another rule is one known as the New Hampshire rule, which is based on an imaginary cubic foot, equal to about 1.4 of the standard cubic foot. The statutes of New Hampshire, 1910, give the law on this rule as follows:

"All round timber, the quantity of which is estimated by the thousand, shall be measured according to the following rules: A stick of timber sixteen inches in diameter and twelve inches long shall constitute one cubic foot, and the same ratio shall apply to any other size and quantity. Each cubic foot shall constitute ten feet of a thousand board feet."

In the practical use of this rule it is customary to consider 115 cubic feet equivalent to 1,000 feet board measure, instead of 100 cubic feet, according to the wording of the statute. In this case the diameter is taken at the middle of the log inside the bark. If the diameter is measured at the small end of the log, 106 cubic feet are allowed for 1,000 board feet. The New Hampshire rule is also called the Blodgett rule.

An Ohio Barn

To the Editor: Napoleon, Ohio.

Find enclosed \$2.00 for a year's subscription. I am also sending you a photo of a barn frame I built last summer. Would like to see it in the American Carpenter and Builder. This barn is 40 by 80 feet, with 12 ft. posts, 4 open



Fine Barn in Course of Construction at Holgate, Ohio

bents, and a 10 ft. brick basement. This barn was built on the farm of Roller and Pickering at Holgate, Ohio. Wishing the American Carpenter and Builder all success,

> EDW. M. BURGEL, Contractor and Builder.

Fitting Sliding Doors

To the Editor: Binghamton, N. Y.

I would like to ask the following question through your valuable paper: Will some reader or brother carpenter tell me if there is, any way to put on stops on sliding doors without cutting out for the escutcheons to pass the stops to allow the door to shove back flush. It makes an unsightly looking job otherwise.

E. S. MEKEEL.

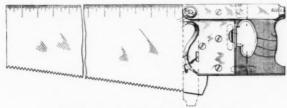
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CONDUCTED BY WATSON & BOYDEN, PATENT LAWYERS AND SOLICITORS, WASHINGTON, D. C.

Combination Saw

1,011,042. Patented Dec. 5, 1911, by Henry Eweler, of Brook- 1,003,499. Patented Sept. 19, 1911, by Henry Platt, of Suffern, lyn, New York.

This is a combination tool, consisting of a hand saw in the handle of which is mounted a plumb level and a surface



Combined Saw, Rule, Plumb and Level

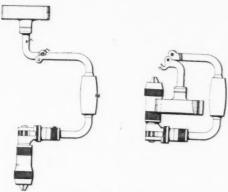
level. The back edge of the saw is provided with a scale of inches and a swinging arm is pivoted to the handle; and may be swung into position to act as one side of a square while the saw blade forms the other side.

Folding Brace

1,006,316. Patented Oct. 17, 1911, by Francis Darwin Turner and Norman De Ford Corser, of Salt Lake City, Utah.

It is a well known fact that one of the most inconvenient tools to pack away is the ordinary carpenter's brace. This is on account of the peculiar shape of the tool, the bend necessitating the provision of more room for the tool than other tools of similar weight would occupy.

An object of this invention is to provide a device which



Brace that Folds up

is capable of being folded up into a compact form so as to occupy little room in a tool chest or carrier, and which at the same time can be easily adjusted to the proper working position.

The two illustrations show the brace in its folded and working positions.

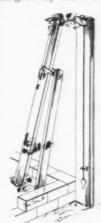
Support for Plumb-Rules

N. Y.

This invention relates to plumb rules and more particularly to means for supporting a rule in vertical position when starting a plumbing.

Heretofore, it has been the practice for brick-layers, masons and other artisans, when starting a plumbing to lay the first

few courses of wall or partition without the aid of a plumb rule, relying entirely upon the eye to properly aline the bricks until the wall has reached a sufficient height to permit the plumb rule to be placed against the same, when the bricks in the lower courses of the wall are struck with a hammer or other suitable tool until the wall is plumb. Such a mode of construction is very unsatisfactory, not only on account of the loss of time and labor on the part of the bricklayer in alining the bricks after the lower courses are laid, but also by reason of the fact that the mortar sets quickly, thus rendering it almost impossible to aline the bricks with the result that the base of the finished wall or partition is often out of plumb.



For Plumbing

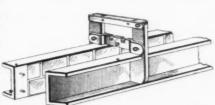
The object of the invention is to obviate these objectionable features and to provide means whereby a plumb level may be supported in vertical position when starting a plumbing so as to provide an accurate gage for the bricklayer to build against when laying the lower courses in a wall, thereby not only insuring a perfectly plumb wall, but materially reducing time and labor on the part of the operator in erecting said wall.

The construction and arrangement of the device will be obvious from the illustration.

Concrete Wall Molding Device

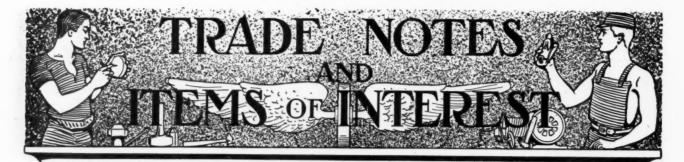
1,005,016. Patented Oct. 3, 1911, by Richard W. Fuller, of Woodward County, Okla.

This is an improved wall mold consisting of a pair of channel bars held together by means of a special clamp. After the concrete has set moved laterally



the clamp may be Movable Form for Making Concrete Walls

out of engagement with the wall.



Home-Made Cutters

To file a home-made knife so it will cut any of the standard mouldings entails experience and tedious work. Much time is expended on cutters for even the simplest mouldings, while the more elaborate ones, with their curves and offsets, consume time enough to more than pay for up-to-date Reversible Cutters. Then again the home-made cutter must be re-filed to shape at each sharpening. Unless great care is observed in doing this, it will be found that after several sharpenings the shape of the mould has become so distorted as not to match with the original.

In making Reversible Cutters the shape of moulding is turned and ground into the cutting wings. Especially is this practice observed by Messrs. Samuel J. Shimer & Sons. Milton, Pa.; the largest cutter manufacturers in the world. The sharpening is done by filing from the inside of the wings, consequently the shape never changes. The Shimer Cutters are also clearance ground, do not friction and burn the lumber, and as a result do not dull easily.

Reversible Cutters for the Single Spindle Shaper or One-Way Cutters for the double spindle machines will stop the detail work in your mill, consequently you will be saved not only time and annoyance but money.

The Shimer Catalogue and Pattern Book is full of standard patterns, carefully numbered and priced, which you are at liberty to use. If your work can not be conformed to any of the standard patterns shown, send a wood sample or blue print of what is desired and cutters will be made to repro-

Valuable Books on Concrete-Free

Our readers will no doubt be much interested in the two books on concrete which are being issued and distributed by the Helm Brick Machine Co., of Traverse City, Mich. One of these books is a Hand Book on Concrete Brick and Block Making. It covers sixteen subjects of very great importance to the concrete worker. They are as follows:

Ways of making products. The field for concrete. Selecting materials. How to proportion. How to cure product. Plant arrangement. How to estimate. Comparative tests. Table of compression work- Hints on selling. ing values.

Various building systems. Forming the product. Steam curing. A waterproof building system fully illustrated. Weights of materials. Profits in concrete.

For the next thirty days the above company is sending out this valuable Hand Book absolutely free to all who inquire for it, and in addition they send along a complete catalog illustrating and describing Helm presses and the Helm dry

> wall building system. The accompanying illustration shows one of the Helm presses which is built for making pressed cement brick or the dry wall building blocks. These presses are built in different sizes and for hand or

power operation. They exert a pressure of 80,000 pounds, and do away with tamping. The Helm dry wall building system makes it unnecessary to use furring and lathing, and consequently saves money for the builders. This system is being rapidly adopted.

Both of the valuable books mentioned above can be secured absolutely free by our readers by simply writing to the Helm Brick Machine Co., 471 Bank Bldg., Traverse City, Mich.

I. H. C. Almanac and Encyclopedia

We have received from the International Harvester Company of America, Harvester Building, Chicago, their 1912 Almanac and Encyclopedia. This is a very handy little volume, containing a world of practical information.

When the first copy of this I. H. C. Almanac was issued in 1909, the one thought in the minds of its editors was to make it a modern almanac. To that end they have each year secured the services of agricultural experts in preparing special articles of value to farmers. In the 1912 edition will be found the following specially valuable articles:

"Some Economic History of the Original Thirteen States," by Cyril G. Hopkins.

"Seed Testing," by Stephen D. Van Benthuysen.

"Rotation of Crops," by J. E. Waggoner.

"Alfalfa," by J. E. Wing.

"Up-to-date Dairying," by W. D. Hoard.

"Sanitation in the Country," by Henry Wallace and other excellent articles on Beautifying the Farm, Irrigation and Drainage, Fertility, Crop Production, and so on.

We are informed that this Almanac and Encyclopedia, together with a beautiful 1912 calendar, will be sent free of charge to any reader of the American Carpenter and BUILDER writing for them.

Buck Brothers Edge Tools

For fifty years the tools made by Buck Brothers, Millbury, Mass., have had the reputation for excellence among the woodworkers in the United States.

In their new Edge Tool Price List and Reference Book, which has just been received, they make it clear that this reputation has been built up by no secret process. They have simply made it a rule ever since the business was established in 1853 to buy the best material to be found in the market, to employ the best skilled workmen and to give constant personal supervision to the business, with the one idea of producing high grade tools.

They state that occasionally workmen express surprise that their tools are somewhat higher in price than those of other manufacturers, but that constant use has proved them to be the cheapest to the man who earns his living by their use, due to the length of time they will hold a fine cutting

This catalogue and reference book lists chisels of all kinds, plane irons, carving tools, etc. Woodworkers will find it a valuable and interesting book to have. It is substantially bound, nicely printed and illustrated. It will be sent free on request to readers of the American Carpenter and Builder.



Where the Big Bargains Come From

Out from these great concrete warehouses come the greatest millwork and lumber bargains that the American market affords.

Our whole business revolves around the bargain idea. The present building season finds us better equipped than ever before to save money for contractors and builders. You will be amazed to see the big reductions on staple millwork and lumber of highest guaranteed quality.

New Bargain Catalog Ready

This catalog is in itself an immense exhibit of the finest building material on the market. It offers an almost unlimited variety of the latest styles in millwork of every description. Doors in all regular sizes and in scores of new and beautiful patterns and in various woods
—veneered doors in Colonial, Mission, Craftsman and other popular styles-art glass doors in exquisite designs and colors-doors for every purpose. Windows to correspond with every style of door. Mouldings, inside finish, flooring, mantels, stair and porch material-everything that goes into any home, down to the very last detail. A bargain price and a guarantee of quality, safe delivery and satisfaction on every item. Send for the catalog and see for yourself.

New Plan Books—Sent Free

The new Gordon-Van Tine Book of Plans, prepared at a cost of over \$5,000, is now ready for free distribution to carpenters and contractors. A complete and practical work that gives 32 designs for city, suburban and country residences, cottages and bungalows costing from \$600 to \$6,000. Also 12 plans for barn, dairy and cattle barns and other outbuildings. This book keeps cost within original estimates, for every plan has been proved again and again by actual construction.

The Plan Book will be mailed free on receipt of 10 cents in stamps or a

dime to cover cost of packing and mailing.

You Are Invited to Visit Our Vast New Millwork and Lumber Plant

Although we conduct our business entirely by mail, we like to have carpenters and contractors visit our plant. Hundreds of them do this every year. Our warehouse is the busiest place in Iowa. Come and see us loading 22 cars at a time from our loading platforms, extending the entire length of the plant. Meet personally the men who stand behind this gigantic enterprise. The latch string is always out.

We Can Save You Hundreds of Dollars This Season

Why pay middlemen's double prices for millwork, lumber and other building material? Save several hundred dollars this season by buying at net wholesale prices direct from (167)

GORDON-VAN TINE COMPANY

597 Federal Street

Davenport, Iowa

Built-up Column; press, Plain Cap. Dealer's Price, \$3,25

Bungalow Plans Free

If you are interested in obtaining absolutely free of cost a complete set of architect's plans and working drawings for an attractive bungalow costing about \$5,000 to build, write at once to the Southern Cypress Manufacturers' Association, 1216 Hibernia Bank Building, New Orleans, La., and ask for Vol. 8 of the "Cypress Pocket Library," which has just been published. It will be mailed you free on request. In addition to the plans for a fine example of this type of residence known as Bungalow "C," from the design of Wm. G. Massdrene, a New York architect widely known for his original and successful bungalows, the volume contains complete specifications covering all materials and details of construction, and incidentally tells you a very interesting story of the advantages of cypress wood as a building material from the point of view of durability, economy and artistic quality.

And by the way, this little volume is only one of a series of several volumes comprising the "Cypress Pocket Library," any one of which can be had on the same liberal terms—simply for the asking. Vol. 1 will give you the full text of the U. S. Government report on cypress, together with a list of the titles of the several volumes of this useful little library, which is published to aid in carrying out the object of the "All-Round Helps Department" maintained by the Southern Cypress Manufacturers' Association. The maintenance of this Department is a splendid work, as it enables anyone to get on request authoritative and detailed practical advice on problems of wood construction.

Tools for Special Purposes

This is an age of specialization. Tools and machinery are demanded for a specific purpose—to do one thing well—to do it better and faster than with present practices and tools.

Recognizing this fact the manufacturers of the Shimer Cutter Heads began several years ago to prepare for each branch of work a special tool—a Cutter Head which should be the best of its kind, embracing all the labor and time-saving features possible and made to work interchangeably with other tools.

These Cutter Heads while built on one general plan, differ in their special application, and embrace Heads for making Flooring, Ceiling, Siding, Wainscoting, Ship Lap, O. G. Batten, Jointing, Door and Sash Mouldings besides being adapted to the making of many specialties.

This interchangeable system of Shimer & Sons has met with universal favor among mill men especially as these special Cutter Heads are so low in price that a variety of them can be purchased for a comparatively small sum of money.

There is not a tool shown in the Shimer Catalogue which is not rendering good service somewhere. The large line of Matcher Heads are built to suit any pocket book and to meet conditions arising from day to day. They are made for the fast feed matcher taking stock at 200 feet per minute as well as for all the machines between the fastest and the slowest. A study of this book will put you in position to buy intelligently. If you do not have a copy send for one at once to Samuel J. Shimer & Sons, Milton, Pa.

How I was Able to Own a Fine Cruising Yacht By A. U. Hoyt

After consulting several catalogs I had received from manufacturers of boat frames and boat material in the "knock-down," I finally decided on a raised deck cruiser of the Norman Stern type, 32 ft. over all and 8 ft, beam shown in one of the catalogs.

Quality Is Economy

How do you finish floors—with Wax or with Varnish? With cheap or good Varnish?

Between good wax and poor varnish there's not much to choose—the polishing and re-varnishing are expensive luxuries.

Between the best wax and such a varnish as Murphy Transparent Floor Varnish there is the choice between an hour's hard work of polishing each day and an occasional few moments of light dusting.

The Varnish That Lasts Longest Murphy Varnish Company

FRANKLIN MURPHY, President
Associated with Dougall Varnish Company, Limited, Montreal, Canada

NEWARK, N. J. CHICAGO, ILLS.

ut It At Work In Your Shop

The "Multimotor" Shop Engine increases your profits and keeps down the size of your pay-roll.

Does the work of three men at an expense of less than a cent an hour.

Stop pedal-pushing and crank-turning! Let the

Fuller & Johnson "Multimotor" Shop Engine

turn the wheels in your shop. This wonderful engine is small in size but a giant in power. Runs all hand-power or foot-power machines-jig saws, lathes, emery wheel, grindstone, drills, etc. Just the thing for carpenters, contractors and

owners of small workshops.

Perfectly Simple **Absolutely Safe**

Simplest, neatest, strongest, most reliable little engine ever built. Comes to you complete-nothing to add but gasoline.

Easily moved anywhere. For indoor use has out-door fuel tank, insuring perfect safety.

Important working parts protected by dust-proof case. Needs no attention while running. Works steadily

all day on a few cents' worth of grocery-store gasoline.

It is air-cooled, fool-proof, cannot freeze or overheat.

The "Multimotor" in design, material and construction equals the best automobile engines.

Every engine is thoroughly tested before leaving the factory, and is

Fuller & Johnson Farm Pump Engine

Practically the same as "Multimotor," with pumping gears added. Can be hooked up to any pump in 15 minutes. Needs no belts, arms, jacks or special platform. Pumps 270 to 2,450 gallons every hour. Perfectly adapted to farm and suburban use

Engine Book Sent Free!

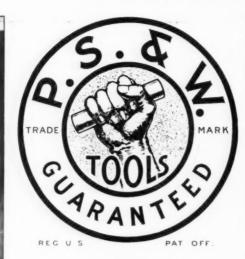
Book, giving full information about "Multimotor" and Farm Pump Engine, sent FREE on request. Let us tell you more about these amazing little power-producers. Let us send you the name of the nearest dealer, who will show you the engine and explain what

If interested in larger engines, ask for Catalog of Fuller & Johnson's Famous Double-Efficiency Engines.

"Handy as a Pocket in a Shirt"



FULLER & JOHNSON MFG. CO. (Established 1840) Madison, Wis., U. S. A.



The MARK of the MAKER on this chisel guarantees good service

THAT means more than quality alone—though the quality is there, just as in every P.S. & W. Hand-Tool.

Not only a special highcarbon tool-steel in the blades; but a temper that gives the sharpest and longest-wearing edge.

Not only straight-grained, seasoned hard-wood in the handle, but handles that are turned to fit smoothly and snugly in the socket.

These are but two of many service qualities that have given P.S. & W. Chisels and Gouges the leading position with expert mechanics.

Guaranteed P. S. & W. Braces

Next time you go to a hardware store—sk to see a P. S. & W. "Samson" Brace. It has the vise-like grip, and instant release of the ball-bearing chuck, as well as a steel-clad head with dust-proof ball bearings. It's one of the top notchers in cur very complete and extensive line of hand tools for Carpenters.

Write today for our free 170-page "Mechanics Handy List". It contains 35 pages of useful information, and a catalog of over 200 tools for Carpenters, Machinists, Electricians and Tinsmiths.

The Peck, Stow & Wilcox Co. MFRS. of the Largest Line of Mechanics' Hand-Tools Offered by Any Maker

Address Correspondence

22 Murray Street - New York City
Established 1819 - Five Large Factories

I came to this decision for several reasons. The model boat was a very handsome looking craft, the company one of the oldest in their line and with the reputation of sending out only first class material. I wrote to them for full particulars regarding the model I had selected and received without delay a set of blue prints drawn to scale, showing the sheer plan, cabin plans, construction plan and cross sections, which looked very good to me. I, therefore, sent in my order for a set of perfect frames, planking cut to exact shape, cabin frames, fittings, engine bed, and hardware to complete the boat. The material for cabin and interior finish I decided to buy locally and save the freight, as this is only ordinary lumber and can be purchased in any town.

The goods arrived promptly, and I had them delivered to a vacant building close to my home which I had secured to build the boat in. The next morning I started to unpack the material. I found in the box of hardware and fittings full instructions and illustrations for finishing the boat complete, together with an itemized list checking every article.

I set up the keel on blocking, as per instructions, and bolted the stem to keel, plumbed it up and braced it solidly by nailing a staylathe from stem to side of shop. I next set up and fastened the transom to place, which was very quickly done,



"I Finally Decided on a Raised Deck Cruiser 32 ft. Over All and 8 ft. Beam."

as there was no fitting of any kind to do, and was then ready for the ribs, which I found had all been beveled, fitted, fastened together and numbered with a corresponding number on the keel, so that I could almost set them up with my eyes closed, which shows that it was a short job. In fact, at quitting time the first day the boat was completely in frame. The work was so fascinating and I had gotten so interested in it, you may be sure I was on the job bright and early the next morning and began bolting the keelson to place. This was done by putting a drift bolt down through the keelson and each floor timber into the keel, riveting a washer over each bolt as it was being driven to place. I could plainly see that it would take some heavy weather to ever tear this to pieces.

According to the instructions, the next thing was to put in the bilge stringers. (These I might say incidentally are straight pieces of oak that run from the stem to the stern of the boat and follow the hollow of the bilge.) They are fastened to place by putting a bolt through each rib and stringer with a nut and washer on the inside or the stringers. Having bolted these to place the boat was ready to begin planking. In looking over the instruction sheet I found that the top plank or sheer strake as it is called was to be put on first. This was a clear white oak and sawed to exact shape.

The next iob was to put in the clamps. These are straight pieces of oak and run from the stem to the transom on each side of the boat, with the top edges of them 1½ inches below the top edge of the sheer strake. They are fastened to place by putting a bolt through the bottom edge of the sheer strake and each rib with a nut and washer on the inside of the clamp. I next started to put on number one plank, which fits along the keel and is called the garboard strake. This I had been told was the most difficult plank of the whole lot to put on, as there is considerable of a twist to the forward end of it where it fits in the rabbet of the stem, and as I

TRIUMPH OF THE UNDERFEED



Cheapest Heat

in China
as well as
in America

Write for FREE Catalog and Learn How to SAVE One-half to Two-thirds on Coal Bills

CLEAN, EVEN heat at LEAST cost is insured everywhere by the Underfeed System. This is the reason why so many architects and builders have endorsed the fed-from-below and all-fire-on-top Underfeed. This system has won international renown for adding to the renting or selling value of any building.

With all heating systems of the world in competition, the Underfeed was selected by President Seymour to heat four buildings of the Presbyterian Mission College at Teng Chou Fu, North China. Knowing the matchless economy of Underfeed maintenance, after a trial of two years in a Mission School in Korea, Dr. Seymour delegated L. H. Severance, of Cleveland, O., to place the big order for North China. Here, cost of high grade coal

is almost prohibitive, while poor grades, which burn just as perfectly in the Underfeed and yield as much heat as high grade coal, are cheaply obtained. Because of its ability to perfectly consume cheapest grades of coal, the Underfeed soon pays for itself. No matter where you live, you can cut your coal bills one-half to two-thirds by installing.

Peck-Williamson Underfeed HEATING FWARM AIR BSTEAM-HOT WATER SYSTEMS FURNACES-BOILERS

Adapted for all buildings---large or small, residences, stores, apartments, churches, schools or halls.

H. T. Hammond, Mingo Junction, O., writes:—"The wind hits my house all around. My slack bill to heat six rooms, two good sized halls and bath last winter was \$14.60. Had no black smoke or dirt. Anyone can save fuel, time, labor and money by buying the Underfeed."

This illustration shows the Underfeed Boiler



In the Underfeed, smoke and gases, wasted in other heaters, must, in the Underfeed, pass through the fire, are consumed and make more heat. Cheapest slack, pea and buckwheat sizes of hard and soft coal, which would smother fire in other heaters, yield in the Underfeed as much clean, even heat as highest priced coal. The few ashes are removed by shaking the grate bar as in ordinary furnaces and boilers.

If you are going to build either for yourself or for investment, it will PAY you to install an Underfeed. When you specify a Peck-Williamson Underfeed, you are insuring all-time heating satisfaction at least cost, thus adding to your own reputation as a successful architect or builder.

Our Underfeed Booklet and Furnace Catalog and Heating Plans of our Engineering Corps are FREE.

Write TODAY for fac-simile testimonials.

Illustration shows furnace without casing, cut away to show how coal is forced up under fire, which burns on top.



THE PECK- WILLIAMSON CO., 436 W. Fifth St. CINCINNATI, O.

had no steam box I began to think that it was a tough proposition, but by heating a kettle of water boiling hot and pouring it on the ends I brought them to place. The balance of the planking was dead easy by following the instructions and being a little careful in beveling the edges so as to form a calking seam, I succeeded in doing what I considered a good job. At any rate the boat was always water tight as long as I owned her, which I considered good enough proof, especially as I had done the calking myself. The calking I found was not a difficult job. I had first class calking cotton which was included in the hardware furnished by the company that I bought from, and their instructions made the work very simple.

After the boat was planked up I found there was one job that I could not do without help, and that was setting the nails in the planking, but I got out of this cheaply by hiring a boy, paying him 75c for a half day to hold a clinch iron on the inside of the ribs while I set the nails in. After this was done, I went all over the planking with a smoothing plane, planing it smoothly, and afterwards using sandpaper to make a perfect job.

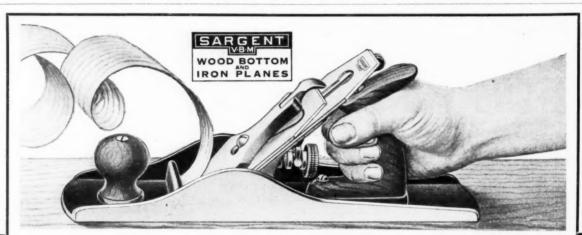
I was now ready for the cabin work and got out the cabin instructions and blue prints. The plans looked good to me and seemed to be worked out to use all available space. I decided to follow them entirely and make no changes. The toilet room was forward, just aft of the gasoline tank, and was 4 ft. long. Next came the main cabin with four berths and 2 hanging clothes lockers. This room was 7 ft, 9 inches long. Aft of this came the engine room and galley which were 4 ft. The cockpit was 7 ft. 9 inches and the after deck 3 ft. long.

I first put in the three cross engine beds which were sawed to shape and all the fitting I had to do was to notch them over the keelson. These were fastened to place by putting drift bolts through the beds into the keelson and keel; also a row of nails through the planking into the beds. I next put in the cabin floor beams and laid the cabin floor; also the cockpit stringers and cockpit floor beams, and fitted the cockpit floor to place, but did not fasten it permanently, as the propeller shaft runs underneath this floor and I wished to have it loose when I installed the engine.

The next on the docket was to lay the after deck and planksheer. This was very easily and quickly done, as the deck beams were sawed to exact shape. Now came the cabin proper, and I decided to use red cypress for the sides and roof, as I could get it clear and in the proper widths. It also takes a good finish and is lighter in weight than oak. I continued to work at the boat at odd times, when I did not have to work at my trade, in fact, I did not loose any time from my regular work by building this boat, as I did the whole work evenings and at times that I was laid off for an odd day. The boat was completed, ready for the engine, before navigation opened and I had not missed the time I put on her.

I had written for and received many engine catalogs and had carefully read them over and found out that each and everyone of the had the "best engine made," and was, therefore, in somewhat of a quandary. Decided to write the company that I had bought the frame of, for advice, as I had seen some motors that would not always move when you wanted them to. After hearing from the company I took their advice and ordered an 11 H. P. engine which they said would give the boat a speed of about 10 miles per hour, which was fast enough to suit me. I installed and piped up the engine, doing all the work myself, as I was a little shy on money and could not afford to pay out any more money than was absolutely necessary. As per instructions I also

(Continued to page 94)



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BEST

MADE

We Warrant All Planes Upon Which the Name Sargent Appears

The Cutters are made from the best double refined English cast steel, tempered by the very best improved process, then highly polished and sharpened ready for use, and are WARRANTED. The Cutters are made from heavy steel, which insures no chattering, even when the plane is used on cross-grained hard wood.

The Sargent Tool Book-Free On Request

gives a description of the full line of Sargent Planes and other tools for mechanics. This 250-page text-book on tools is worth sending for.

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It Pays to Deal with Practical Lumbermen



Nearly 10,000,000 feet in sight. This cut shows our big Southern Illinois Plant, situated re 27 Trunk Lines and 3 Interurban and Traction Systems have their terminals. Our customers get as prompt service as they could from their home lumber yard, and many other advantages which the local yard cannot offer them.

We do not claim to know anything but lumber-lumber and mill work We handle nothing else—but in lum-ber and mill-work we are experts, and we can give you material of selected quality at rock-bottom prices, that even to the closest buyers are simply amazing. Send the free coupon today and investigate.

It took us 11 years to work up from lumber jacks to mill owners—then fol-lowed 20 years of actual experience in the lumber business, in which we are today. During all this time not a foot of our selected stock has been shipped out without our personal inspection—and every shipment has been made at very lowest rock-bottom figure. This the way we have built up our tre-

crease

Send free coupon below for our big history-making lumber and mill work book listing hundreds of astounding bargains-bargains that will mean a tremendous increase in your profits. Remember, these prices are quoted on material that is selected by expert lumbermen, and absolutely guaranteed in every respect. These prices are rock-bottom and are absolutely the lowest figures ever offered to bona fide builders. Remember, our material is absolutely guaranteed to be strictly of the highest grade. We ship to your customers without any money down, thus assuring them of the best quality, since they may unload the car and examine before paying.

Our Big Helps to Builders—Carpenters—

We offer all of the facilities (and more) of the local lumber yard. We offer the highest grades of lumber-a great stock to select from-the lowest prices, because of our enormous capacity and the man who engages you to build has the opportunity never before offered.

Our whole plan is to help you—the builder—the carpenter—the contractor. We want you to bear in mind that we are doing something more than just selling lumber. We are lumbermen - we are in the lumber business and the lumber business alone. We don't deal in anything but lumber, and, as we told you once before, we don't know anything but lumber, but we know THAT. We want you to write us.-if you want to deal with out and out lumbermen whose enormous stumpage and farreaching facilities enables you to buy just as if you stood right in our lumber yards.

BIG BOOK of Bargains

send for it today. There is everything in this catalog—bargains in doors—
gable ornaments—windows—transoms—cellar sash—attle sash—barn sash—stall
sash—wall board—porch columns—newels—spindles—brackets—rails—balusters—
mouldings—battens—lattice—nosing—wainscoting—window stools—casings—b a se
blocks—head blocks—stalr rails—grilles—everything—positively everything and at
right down rock-bottom prices. You can find anything in lumber and millwork in this book—anything to build a house from cellar to garret.

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No matter what you are going to build — write to us and let us give a Lumberman's elivered Estimate — positively free and postage prepaid. Write your name and Delivered Estimate—positively free and postage prepaid. Write your name and address on the free coupon and mail it to us today—now. We want to give you an estimate on any bill of lumber you want—a positively free estimate. Get our Free Catalog at once.

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TRUDE BUILDING, Dept. 1691

CHICAGO

ILLINOIS

Donnellan Lumber Co., Trude Building, Dept., 1691, Chicago, Ill.

With the understanding that I am not buying anything or paying any body for anything you may send me free and prepaid your Lumber and Millwork Catalog, and explain your helps to carpenters, builders and con-

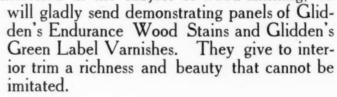
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Glidden

Green Label Varnishes are the highest grade varnishes made. They are made in the largest, most complete and best equipped varnish plant in the world, and are the result of nearly half a century's experience in manufacturing varnishes for all purposes.

Wherefore, it redounds to any builder's credit to use Glidden's Green Label Brand.

To any builder who is interested in the subject of wood finishing, we





The five brands we recommend your specifying:

M. P. Durable Exterior			۰							\$4.00
M. P. Durable Interior										3.00
M. P. Durable Floor										
Glidden's Velvet White	En	nam	el	(Eg	g S	hel	F	inis	h)	5.00
Glidden's Superior Whit	te I	Ena	me	el (C	ilos	s F	inis	sh)		5.00

These varnishes are high in price but as the finish is the final touch that completes the job, the finishing material should be of the best. Price ought not to be considered.

The Glidden Varnish Company

Factories: Cleveland, Ohio—Toronto, Canada Branches: New York — Chicago — London



M. P. Durable Interior, because of it's light color, it's wonderful flowing and brushing properties and it's extreme elasticity and durability, is the highest grade varnish made for interior use.

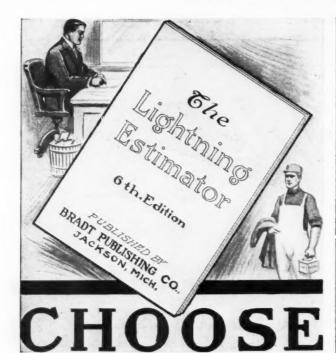
Glidden's M. P. Durable Floor stands unscathed, even when subjected to usage that would destroy any other floor varnish made. We can prove this statement. It combines hard and quick drying properties with great elasticity. It is impervious to water and will not mar nor scratch white.

Glidden's Velvet White Enamel (Egg-shell Finish) dries with the appearance of a dull, velvet finish and thus saves the expense of rubbing, though it can be rubbed and polished beautifully, if desired. It produces a more artistic finish than any other white enamel on the market, and the surface produced is waterproof and non-porous, thus resisting the action of repeated washing, alkalies and the fumes of the atmosphere.

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The Glidden Varnish Company

Factories: Cleveland, Ohio—Toronto, Canada Branches: New York — Chicago — London



IT'S up to you to be the man at the top instead of the man with the dinner pail.

Don't hesitate to grasp this opportunity to win success, for there's always room at the top for the man who knows how.

The LIGHTNING ESTIMATOR

stops worry, lying awake nights, over or under estimating and guessing—in fact, by showing you how to estimate the cost correctly, it spells the word \u00e4ucce\u00a4\u00a4 for you. Don't do yourself an injustice by passing up the greatest opportunity ever \u00a4\u00ffered to Carpenter, Contractor or Builder.

The New Sixth Edition of the LIGHTNING ESTIMATOR

will teach you: How much time and material involved in each part of your work; how to figure on unfamiliar work; how to estimate quickly and correctly on a large job; how to estimate on time, material and prices in all parts of the country.

This Book is written by a man who has made good in this profession, and is based on hard, solid facts, secured by the knocks of experience, making it an invaluable guide to any one engaged in or those about to enter the building business.

If you are just starting out, here is your chance to get a firm foot hold. If you are an old timer and getting a little behind the times, here's your chance to brighten up and get some new ideas.

This Edition is bound in cloth, profusely illustrated—a feature not found in other books of this kind. The price, \$1.00. Don't delay. Send for it today.

BRADT PUBLISHING CO.

1260 Michigan Avenue

JACKSON, MICH.

put a lead pipe in each forward corner of the cockpit to form scuppers that would carry off all water that might get in the cockpit from rain or other causes and make it self bailing.

All that remained to be done now was to put on the last coat of paint and varnish, which I finished within the next week and she was ready for launching. I got a truckman to move the boat and put it in the water for \$10.00.

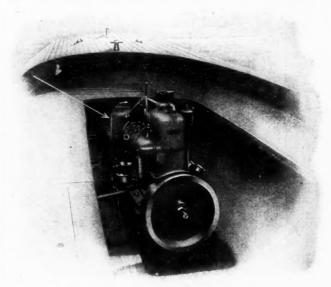
The complete outfit as it now stood in the water had cost me \$600.00. Within two weeks after she was launched I was offered \$900.00 for her, which I refused, as I made up my mind that I was going to enjoy myself sailing that season, as I thought I had earned it; but just before laying up time I did sell the boat to this same party for the \$900.00 after having a whole season's fun out of her, and I intended to build another one this coming winter, but have not just decided whether to build a duplicate of this one or to tackle even a larger one. I had enjoyed the work of building, and had a delightful summer sailing her and had made \$300 in the bargain.

Lackawanna Marine Motors

Quite a bit of favorable comment has been heard in motor boat circles since the new Lackawanna reversible valveless motors' have appeared. "Simple and Self-contained" describes these motors.

Through years of experience in hardest usage the number of parts in these motors has been reduced to a minimum, thereby practically eliminating all screws and fastenings so only a few strong hex head bolts and hex lock nuts are required,—interchangeable parts throughout.

All internal working parts are at once accessible. All exterior operative parts being supported on cylinder, the whole interior is instantly seen by simply removing the six hex bolts securing the cylinder to base without disturbing



Showing Proper Installation of Motor in Boat

engine shaft, bearings. timer, pump, flywheel or foundation and yet giving complete access to pistons, inside of cylinders, crank pin and wrist pin bearings. It is claimed Lackawanna motors have been run five seasons without so much as removing the six bolts to look inside; as they are looked into and adjusted after complete testing and before shipment.

New illustrated descriptive pamphlet is now ready and can be had by addressing Lackawanna Mfg. Co., 126-A Liberty St., New York City.

All those interested in motor boat building should investigate this well known and reliable engine.

The ABC of BEAVER BOARD Construction

A series of talks to carpenters about the practical use of Beaver Board, the pure wood-fibre wall and ceiling material that is durable, economical, artistic; has none of the disadvantages of lath, plaster and wall-paper; and is appropriate to any type of building new or old.

Beaver Board is essentially a proposition for Carpenters and Builders.

CHAPTER I

What Beaver Board Is, and How it is Put Up and Decorated

This brief, concise description is merely to start you right, and will be followed by other advertisements dealing each month with concrete examples of its use for different purposes.

B^{EAVER} BOARD is a pure-wood product, and can be handled as easily, quickly and satisfactorily as any wood-product. It is made in panels of various sizes to meet all requirements. These panels can be cut with a fine cross-cut saw to fit about door-jambs, window-casings, etc., but the sizes are such that there is practically no waste. The panels can also be easily moulded to an arch, as they have sufficient elasticity.

Exact Instructions with Each Shipment

Although it is easy to get good results in putting up Beaver Board, you want the very best. So does your client; so do we. Therefore, with every shipment we send printed directions which cover all the little points that long experience has shown help to make a thoroughly satisfactory job. Always look these over carefully before beginning actual construction.

Beaver Board Decoration

Beaver Board Decoration

Beaver Board is painted after the panels are nailed up and before the panel strips are put on. It is never papered over. Wall-paper is not only less durable and artistic than painting, but much less sanitary, and nowadays folks demand clean, sound, healthful construction in everything.

Beaver Board Sizes

Stock sizes carried by dealers are in 32 in. and 48 in. wide by 4, 5, 5\frac{1}{2}, 6, 7, 8 and 9 feet long. Sizes in stock at factory for immediate shipment are 24 in., 32 in., 36 in. and 48 in. wide in any length from 4 to 16 feet. Lengths above 10 feet require crating, for which an additional charge is made to cover actual cost. Beaver Board is 3-16 inch thick. Decorative strips, moulding, plate rails, etc., can be purchased from planing mills and lumber dealers, but where unobtainable can be furnished by us.

Beaver Board Advantages

Beaver Board is economical, easy to handle, suits any kind or sort of building, retards heat, cold and sound, doesn't crack, check or deteriorate with age. Its endless possibilities for all kinds of uses are fully described in our free booklet "Beaver Board and its Uses" with many pictures of different interiors. Write for it today.

Look for Chapter II in the next issue of American Carpenter and Builder.

The BEAVER COMPANY of BUFFALO

331 Beaver Road, Buffalo, N. Y., U. S. A.

THE BEAVER COMPANY, LIMITED

371 Beaver Avenue, Ottawa, Canada

When Writing Advertisers Please Mention the American Carpenter and Builder.



Room ready for Beaver Board construction, studs evenly spaced and headers in correct position to suit banel designs adopted



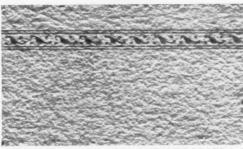




PURE-WOOD-FIBRE WALLS & CEILINGS



Look for this mark on the back of every panel



One of the greatest attractions of BEAVER BOARD is its beautifully pebbled surface. The photograph reproduced above gives an idea of it, but no illustration can show the soft, rich color of that surface when painted. BEAVER BOARD is 3-16 of an inch thick.

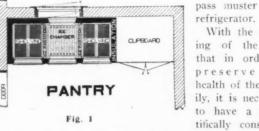
The Built-in Refrigerator

By T. T. Redington Advertising Manager McCray Refrigerator Co.

There has arisen in the last few years a marked tendency for architects and building contractors to include in their plans and specifications for residences, one of the features of the house which is commonly left for consideration until after the house is constructed. This feature is the refrigerator. Formerly, almost anything in the way of an ice box, which would hold a certain amount of ice and have

sufficient storage capacity, would pass muster as a refrigerator.

With the growing of the idea that in order to preserve the health of the familv. it is necessary to have a scientifically construct-

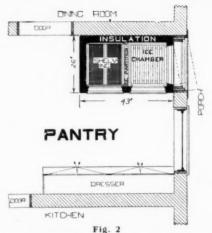


ed and sanitary refrigerator, has come a rapid improvement in the methods of constructing this part of the household economy. Instead of paving \$10.00 or \$15.00 for an ice box, people are now spending anywhere from \$50.00 up for a refrigerator which meets their requirements.

There are several advantages to be gained by including a refrigerator in the plans and specifications. In the first place, economy in space is obtained. By deciding in advance what size refrigerator is wanted, the proper space can be left in the pantry or kitchen so that the refrigerator can be built into the wall and not stick out into the kitchen.

In the second place, harmony between the finish of the refrigerator and the finish of the kitchen or pantry may be secured. The refrigerator can be finished any color to match the woodwork in the room.

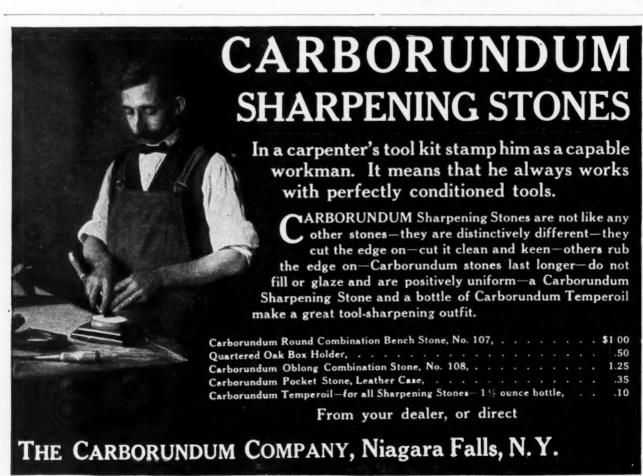
In the third place, it is much more convenient to have a refrigeraror built into its



place, by leaving the required space in the wall, arrangements can be made to have the refrigerator iced from the outside. This saves the dirt and confusion which are caused by the entrance of the ice man into the kitchen and also provides for cooling the refrigerator in the winter without the use of

Bear in mind that the refrigerator does not have to be built-to-order in order to be included into the specifications. By taking the refrigerator manufacturer into your confidence and asking his co-operation, you can find out what amount of space you should leave for one of his stock size refrigerators. In this way, money can be saved and the refrigerator can be as truly built-in as though it were built-

The accompanying cuts show two very convenient arrangements for locating the refrigerator. In Figure 1 the refrig-



GOOD NEWS for Carpenters and Builders

Don't Miss a Word of This

ED. NOTE:—The article below is one of unusual interest to every one concerned in building, either as architect, ED. NOTE:—The article below is one of unusual interest to every one concerned in building, either as architect, contractor or owner, and also of the highest educational value in these days of thoughtless and ill-advised use of inferior substitutes for wood. Wood has been well called "Mankind's instinctive reliance" as a structural material. LUMBER still is the greatest building material in existence—the safest, the most adaptable and most economical. And WHITE PINE and its "half-brother," NORWAY PINE, are by many regarded as the best wood known for most of the uses with which they are historically associated. White and Norway Pine are so essentially "the peoples' lumber" in the diversity of their everyday uses that it is good to learn that the supply is ample and easy to get if demanded.



"The Leader in the Markets for 250 Years" (Bulletin 99, October 1911)

When the folks landed from the Mayflower in 1620 they found themselves on the edge of a dense forest of superb WHITE PINE, covering practically the whole countryside, "and then some." Fine, great trees they were—diameters as big as 7 feet, and towering up to 240 feet. (One WHITE PINE monarch that stood on the present site of Dartmouth College was 270 feet high.)

The cutting of WHITE PINE began at once. Within 15 years they were shipping cargoes of White Pine masts to England. Within 30 years they were sending it to Madagascar and trading it for slaves for the Virginia market. White Pine proved so superior a wood that THE REST OF THE WORLD WANTED IT, JUST AS IT DOES TO THIS DAY, and the thrifty colonists' foreign trade in it grew so that

> IN 1650 FEARS WERE EXPRESSED THAT THE DRAIN WOULD SOON EXHAUST THE SUPPLY.

(See Page 3

Many years later the alarm was raised again, but far-sighted JOSHUA McGEE REASSURED THEM

and told the anxious ones that "cutting a few hundred masts a year would make little inroad on America's forests" which he stated to be "14 or 15 miles long and 300 to 400 miles broad." (He was a true conservative!) And the cutting went right along, yet HERE WE ARE IN THE YEAR

1912 AND STILL PLENTY OF WHITE PINE

AS GOOD AS EVER and plenty of NORWAY PINE TOO
(Which for most uses is just as good as WHITE PINE)

And the best of it is that there is going to keep on being plenty. After 288 years And the best of it is that there is going to keep on being plenty. After 288 years of White Pine cutting in Massachusetts alone (which by many is supposed to be denuded of timber) there were 238,000,000 feet of White Pine alone cut in 1908 (Government figures). The Forest Service further reported that "it is not improbable that a similar cut can be made every year in the future from the natural growth of White Pine in that state." And Massachusetts is "not much" these days on White Pine production. Minnesota and Wisconsin now produce THE BEST as well as the most White Pine. This Government Report also says, "The supply of White Pine lumber need never fail in this country, provided a moderate area is kept producing." You may rely on us to see that through WIDE AWAKE RETAILERS EVERYWHERE, YOU may secure this "staple American lumber" with the same certainty and the SAME QUALITY ADVANTAGES ENJOYED BY YOUR ANCESTORS. If you ever buy lumber, from a chicken coop to the "trim" of a palace, WRITE US before you do it. Inform yourself—this question of "what wood to use" is deeper than many realize. We will reply PROMPTLY AND CANDIDLY. SPECIAL NOTE:—Anyhow, drop a card for our little book (you need it for your own sake, not ours.) FREE on your simple request. Don't wait—there's no profit in waiting. Write TODAY.

MANUFACTURERS' ASSOCIATION EXCHANGE MINNEAPOLIS, MINNESOTA NORTHERN PINE 1119 LUMBER EXCHANGE



More Durable, More Beautiful than Plastered Walls

DEAL WALL BOARD is not a substitute for plaster.

It is vastly better than plaster. It is more permanent, more beautiful, more sanitary, more convenient to apply.

Its decorative possibilities are almost unlimited—and, with all its advantages, it costs less than lath and plaster,

Ideal Wall Board

is helping to bring the day when plastered walls will be used no more.

It is far more sensible because it is nailed to the studs—either in a new building or in the old one, right over the plaster.

It can be used—and is being used—in all sorts of buildings — residences, garages, churches, office buildings, etc., etc.

You, as a progressive dealer, ought to know about Ideal Wall Board.

You should be able to suggest and recommend it to your clients.

We shall be glad to send you a sample and our booklet if you will write us.

THE ROBERDS MFG. CO.

MARION, IND.

erator is located in the pantry from which a door leads into the kitchen. To the right of the refrigerator is the cupboard and the ice compartment of the refrigerator has a door opening on to the rear porch. In Figure 2 the refrigerator is also located in the pantry from which doors lead both into the dining room and into the kitchen. The refrigerator in this case is iced from the end, having the door opening onto the porch.

The McCray Refrigerator Company, Kendallville, Indiana, specializes in building the kind of refrigerators which can be readily incorporated in your plant. It also builds refrigerators to order and will gladly furnish plans and estimates free of charge.

Thin Steel Knives

To use thin steel knives or not to—is a proposition that comes to the mind of every progressive lumberman at this time. The facilities offered by their use are no longer an experiment and those who are willing to retreat from the march of progression will show their adherence to old fogy ideas with all the defective methods accompanying.

To tear loose sometimes requires real courage, but usually such show their progressive spirit and compensate by the early advantages to their complete satisfaction.

Naturally, the reader may hesitate owing to the varied methods of using the thin knife.

Some advocate the use of a square head with thin knife and spring steel back, whereas others purchase complete heads of which there are a variety to select from, especially suited to the use of the thin steel knife.

It matters little which of the methods now in vogue may be adopted, because they all show especially advanced ideas for the planing and surfacing of lumber. There is one point, however, of particular interest, and that is relative to the kind of thin steel knives one adopts.

Many makes of these knives may be found with varying degrees of merit, but those which are especially useful and making particular claim to superiority are the Beedee Knives manufactured by Samuel J. Shimer & Sons, Milton, Pennsylvania, to whose product this journal has frequently referred in the past twenty years.

Do You Enjoy Funny Pictures?

If so, don't hesitate to ask the Murphy Varnish Company for their little booklet "Things that Never Would Have Happened."

It is a colored comic supplement, outdone.

We do not know who the cartoonist was who drew the pictures, but whoever it was, he is a "bird,"—Ideas in them, too.

Every picture in the booklet has a moral, which is that the particular tragedy illustrated would not have happened if Murphy Varnish Company products had been used.

Although this is not an entirely logical conclusion in all of the cases illustrated, we can overlook a minor point of that kind as we chuckle over the deliciously absurd pictures.

The answer is said to be given in the "Q and E Book." Readers of the American Carpenter and Builder should write for the picture book for their children and the "Q and E Book" for themselves. They will be sent free.

Shelby Combined Check and Floor Hinge

The Shelby Spring Hinge Company, of Shelby, Ohio, has recently brought out a Combined Check and Floor Hinge for double acting doors, as illustrated.

Their claims are many for this combined fixture and we believe will at once appeal to the architect and builder on account of its simple, easy and practical way of ap-

(Continued on Page 102)

Boost Your Own Reputation, Mr. Contractor, By Telling Your Customers —"Put a Stop to Depreciation—Build with Cypress at First"



is the "LIFE-SAVER" of an HONEST CONTRACTOR'S REPUTATION

Here is a letter just received from a builder who **knows** by experience. Probably you feel the same way. Why not **CUT OUT TROUBLE?**

_Contractor and Builder,____ Stre

PITTSBURGH, PA., Mar. 22, 1911.

Southern Cypress Manufacturers' Association,

New Orleans, La.

Gentlemen:—Please send me information about Cypress lumber. Have about a dozen frame houses, from two to 16 years old, which I never get through repairing. Window frames, sash, siding, sills, etc., become rotten in a few years, and the contractor gets a bad name (as if it was his fault!) Yours respectfully,

This is a bona fide letter—"hot off the bat." The facts are all too true. HE WILL BE A CYPRESS MAN FOREVER. HOW ABOUT **YOU?**

We say it again—that by honest and intelligent advice on woods we are not only saving losses to people who are going to build anyhow—but we are also CAUSING MORE PEOPLE TO BUILD.

build anyhow—but we This is going to be of more and more benefit to you month by month. It is up to you to intelligently take advantage of this by learning for yourself that CY-PRESS is not only the ONE BEST OUT-DOOR WOOD for the owner—but also the ONE BEST WOOD FOR YOU Cypress "makes good."
That helps your reputation. Cypress is easy to work—that's good for your tools.

We are giving away complete working plans and specifications for T H I S S H I N G L E H O U S E. Many thousands of people ALL OVER THE U.S. are writing for them. THEY WILL HAVE TO GET YOU TO DO THE WORK.
THEY WILL INSIST ON CYPRESS.

It will be MONEY IN YOUR POCKET TO HELP THEM GET JUST WHAT THEY WANT.

CYPRESS is the "comer" in YOUR ter-

LISTEN FOR IT.



Why not FIND OUT what CYPRESS can do for YOU, NOW? WRITE US—ASK YOUR OWN QUESTIONS—about your own needs, big or little. You can rely on detailed and reliable CYPRESS information if you address our "BUILDERS' HELPS DEPT." We will recommend CYPRESS ONLY FOR USES WHERE IT IS THE BEST WOOD TO USE.

Southern Cypress Manufacturers' Association 1216 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

We are producing CYPRESS—and talking it—but not retailing it. BUY IT NEAR HOME. ASK your lumber man if he sells CYPRESS; if he does not, ask him WHY. Then WRITE US. We will tell you where you CAN get CYPRESS.

Will You Read This Book If We Send It Free?



THIS book is the work of expert authorities. It gives instructions how to obtain best results; shows how much material is needed for certain work; lists shades best adapted for different woods; quotes prices on the best wood finishes. It is brimful of information that brings success to every reader. Be sure to get a copy. It is the result of 30 years' expensive experiments and tests. The reason why we give it free is because it tells about

Johnson's Wood Finishes

We want every painter to know all about our wood finishing materials and try them at our expense, so with the booklet we give you generous samples of Johnson's Wood Dye and Flat Wood Finish.

Over \$200,000 Worth of Experience Is Behind This Book—Ask For Your Copy

We have been manufacturing Wood Finishes for over 25 years and know just what painters and decorators need. Our book and samples will bring you the information you want. Get them today.

S. C. Johnson & Son,

"The Wood Finishing Authorities"

Racine, Wisconsin

Generous Samples FREE

To Painters, Builders, Architects, Contractors

ET us send you free a samples of Johnson's Flat Wood Finish and Johnson's Wood Dye, also a copy of our Instruction Book. Architects, Contractors, Painters and Home Owners are enthusiastic over the results obtained and the big saving made possible with them.





ohnson's

is made in 15 popular shades as follows:

No. 126 Light Oak

No. 123 Dark Oak No. 125 Mission Oak No. 140 Early English

No. 110 Bog Oak

No. 128 Light Mahogany No. 129 Dark Mahogany No. 130 Weathered Oak No. 131 Brown Weathered Oak No. 132 Green Weathered Oak

No. 121 Moss Green

No. 122 Forest Green No. 172 Flemish Oak No. 178 Brown Flemish Oak

No. 120 Fumed Oak

Gallons \$3.00-Half-Gallons \$1.50

Test samples on any work you have in hand. Note how quickly Johnson's Wood Dye dries, so that dust and dirt have no chance to settle in the finish. Observe how it penetrates and brings out all the beauty of the grain without raising it in the slightest degree. In addition to this, the fastness of color, ease of applicacation and practical economy will also appeal to you.

hnson's Flat Wood Finish

is a liquid—an easy spreading preparation, manufactured especially for finishing interior woodwork of new residences and buildings—as well as furniture—and equally valuable for refinishing old surfaces.

S. C. This flat wood finish opens a new field for the painter. By the use Johnson of Johnson's Flat Wood Finish, you can make estimates on hand-& Son, rubbed effects that will land the contract every time—give your cus-Racine, Wis. tomer perfect satisfaction—and make you a good profit besides.

Don't fail to secure Instruction Book No. A.C.B.1 and Please send me free samples of samples at once. If your dealer isn't supplied, write us Johnson's Flat Wood and we will send them direct on receipt of postal or Finish and Wood Dye coupon. Shade No. Instruction Book A.C.B.1

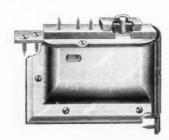
S. C. Johnson & Son, Racine, Wis.

"The Wood Finishing Authorities"

My Dealer's Name is

His Address.....

There is no mortising whatever to be done in the floor, thus entirely avoiding the placing of any of the parts of the hinge or check below the surface of the floor where dampness and rust will soon disturb and destroy the mechanism, as well also as the inconvenience of getting to the parts to do any adjusting, oiling, etc.





Shelby Combined Check and Floor Hinge

In this invention the hinge is placed on the lower corner of the door with the bottom plate of the hinge resting on the surface of the floor. The checking device is placed on the upper corner of the door, pivoting to the upper jamb, the check and hinge being carefully designed and constructed to work conjunctively with each other. When the door is opened and pushed back slightly past right angles it remains open, but when released from this it immediately begins to slowly close, doing away entirely with the danger and accidents which so often happen on account of the door coming back with great force. The whole action is

This hinge and check is made in two sizes, one for doors 11/8 to 11/2 inches thick; the other for doors 13/4 to 2 inches. The covering plates are of deep bevel edge design which adds richness o the whole appearance. It is finished to match all regular builders' hardware.

The Hinge Company have been, for a long time, experimenting with and testing out this hinge and check, putting it to some of the most severe tests and have patents applied for and pending covering some very strong claims.

Substantial Equipment for the Small Wood Working Shop

Recognizing the urgent need of substantially built machines for use in the smaller shops, The Crescent Machine Co., 224 Main St., Leetonia, Ohio, have brought out their No. 51 Crescent Universal Wood Worker. In building this machine it has been the aim of the manufacturer to give the small shops the same substantial equipment as is used by the larger planing mills and factories. That their efforts have been successful is proven by the fact that the new machine has the enthusiastic approval of experienced wood workers.

With this machine the small shop is practically converted to an up-to-date planing mill. The machine is portable, being fitted with special devices for making it instantly available for transporting from one place to another. This feature appeals to the small contractor, who can take the machine out on a special job and thus save many dollars on the cost of mill work.



Under Auspices of National Association of Automobile Manufacturers, Inc.

Complete Displays of Trucks and Delivery Wagons-Gasoline and Electric-All sizes for all uses

NEW YORK

Grand Central Palace Coliseum & 1st Reg. Armory January 10-17

CHICAGO

February 5-10

The following manufacturers will exhibit at Chicago

Adams Bros. Co. American Locomotive Co Anderson Electric Car Co Atterbury Motor Car Co. Avery Co.
Baker Motor Vehicle Co.
Baker Motor Vehicle Co.
Bessemer Motor Truck Co.
Bowling Green Motor Co.
Brush Runabout Co.
Brush Runabout Co.
Cartercar Co.
Chase Motor Truck Co.
Clark Delivery Car Co.
Commerce Motor Car Co.
Dayton Auto Truck Co.
Diamond T Motor Car Co.

Dorris Motor Car Co.
Dow, Joseph
Durant-Dort Carriage Co.
Eclipse Truck Co.
Federal Motor Truck Co.
Garford Co.
General Motors Co.
General Vehicle Co.
Grabowsky Power Wagon

Grabowsky Power Wagon Co. Gramm Motor (ar Co. Harder Auto Truck Co. Harwood-Barley Mfg. Co. Jeffrey Co., Thomas B. Kelly Motor Truck Co. Kissel Motor Car Co.

Knox Automobile Co. Lauth-Juergens Motor Car Co.
Lee Power Co., Henry
Locomobile Co. of America
Lozier Motor Co.
McIntyre Co., W. H.
Mack Bros. Motor Car Co.
Mercury Mfg. Co.
Metzger Motor Car Co.
Monitor Auto Works
Morgan Motor Truck Co.
Motor Wagon Co., of
Detroit
National Motor Truck Co.
Packard Motor Car Co. National Motor Truck Co. Packard Motor Car Co.

Packers Motor Truck Co. Peerless Motor Car Co. Pierce-Arrow Motor Car Co. Pierce-Arrow Motor Car Co.
Pope Mfg. Co.
Rapid Motor Vehicle Co.
Reiance Motor Truck Co.
Reo Motor Car Co.
Sampson Mfg. Co., Alden
Sandusky Auto Parts &
Motor Truck Co.
Sanford-Herbert Co.
Schacht Motor Car Co.
Schmidt Bros. Co.
Service Motor Car Co.
Smith Co., A. O.

Speedwell Motor Car Co. Speedwell Motor Car Co Staver Carriage Co. Stearns Co., F. B. Stegeman Motor Car C Sternberg Mfg. Co. U. S. Motor Truck Co. Velle Motor Vehicle Co. Walker Vehicle Co. Waverley Co. White Co. Wilcox Motor Car Co., H. E. Whitesides Commerce Co. Wyckoff, Church & Part-ridge

7 East 42nd Street, New York

S. A. MILES, Manager

A NEW YEAR'S QUERY

WHOSE DOORS did you handle in WHOSE DOORS will you handle in 1912

The Reliable Max Royal

Veneered Doors

ARE THE BEST



Superior in Workmanship and Design. The Result of long experience in Woodcraft. The Product of the most Approved Machinery.

THE R. McMILLEN CO., Oshkosh, Wis.

Established Thirty-five years-Pioneers in the making of Oak and Birch Veneered Doors-Front Doors a Specialty

BRANCH OFFICES

CHICAGO, ILL. WASHINGTON, D. C. Room 909 Stock Exchange Bldg.

No. 1703 Kilbourne Place

NEW YORK CITY

No. 1123 Broadway

Free

Sharpen vour knives, twist drills, gum your saws-put all your tools in perfect

shape—use this complete outfit 30 days freethen, if you feel it doesn't save you lots of time, work and money, send it back at my expense.

Dimo-Grit-"the wheel for steel." 25 times faster than the grindstone. 10 times more efficient than emery wheels. Will not draw temper.

Dimo-Grit is the new artificial diamond sharpening substance. It is a product of the same electrical processes by which carborundum is made, but Dimo-Grit is especially adapted for use on steel, leaving the smoothest, keenest edge. No need of water cooling, no danger of drawing temper. Dimo-Grit never glazes—cuts hardest steel as emery does soft copper-just a light touch needed.

Luther Hummer Tool Grinder

Engine and foot power—4,000 revolutions per minute by foot power. Shaft drive like an automobile—built completely of steel—dust-proof ball bearings—gravity lubrication and runs easy as sewing machine. Tool rests and attachments enable anyone to do difficult grinding as well as an expert mechanic.

Itself





narpening nce for Look for on the stones

ATTACHME

40 Page Book Free Reprints the story sharpening subs as it appeared i Clure's magazine describes the describes the Luther sharpening outfits—contains valuable pointers on tool sharpening—sent free.

Write Today for 30 Days Free Trial Offer

You do not put your-self under any obliga-tion by getting our 30 days' Free Trial Offer and Free Book. Write today for full descrip-tion of our outfits, and decide which you want for 30 days' Free Trial.

Luther Grinder Mfg. Co.

405 Michigan Street MILWAUKEE, WIS.

The machine combines a band saw, shaper, jointer, saw table, and borer.

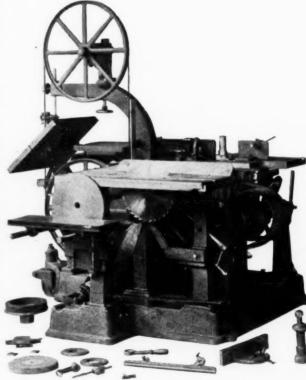
The band saw is equipped with resaw attachment. It has tilting table, and is in every way a substantial machine.

The jointer is the regular pattern 8" jointer, made by The Crescent Machine Co., and when desired can be equipped with round safety head. It is in every way a substantial machine, and is provided with tilting gauge, that is adjustable over the full width of the table. Of course, the jointer is equipped with the CRESCENT jointer guard which is a part of the regular equipment on all CRESCENT jointers.

The shaper spindle is conveniently placed and revolving in a vertical position the machine is admirably adapted for surfacing one side and straightening one edge of a piece at the same time. The shaper spindle is reversible and has a vertical adjustment so it can be lowered below the surface of the table when desired.

The saw table is equipped with a ripping fence that is adjustable to an angle of 45 degrees, and adjustable cut off fence is graduated for setting to any angle up to 45 degrees. The saw can be adjusted for cutting through any thickness up to 4"

The borer can be stopped and started at will. It is conveniently placed at the sine of the saw table, and operates

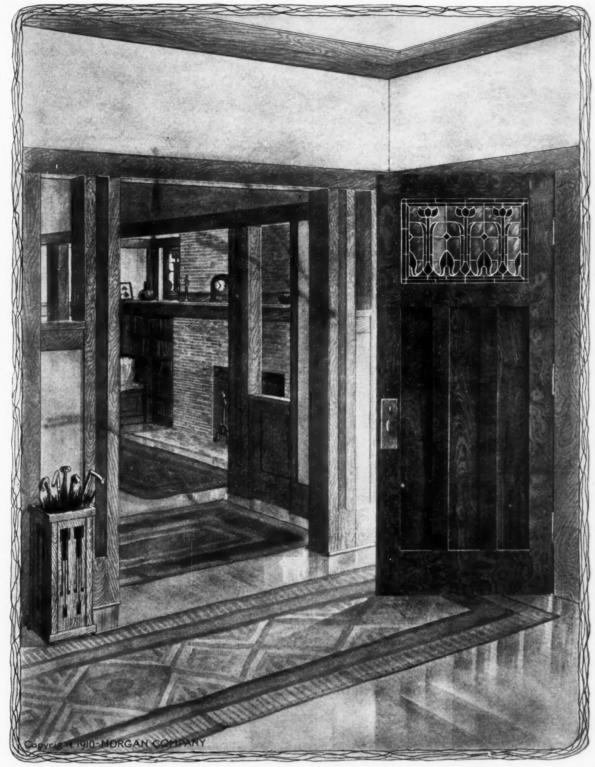


No. 51. Crescent Universal Woodworker.

entirely independent of the saw table. It is provided with adjustable table and has self centering chuck. It can be quickly converted into a hollow chisel mortiser.

An attachment for grinding planer knives is furnished, as are also the disk grinder attachment, and emery wheel for making the machine available for any kind of work coming within the range of the average shop where wood working is done.

With this machine in his shop the small contractor could save himself many dollars in convenience and actual time saved in getting work from the mills. He can also have his work just when wanted and thus be enabled to finish up many more jobs in a season. The manufacturers will be glad to give you further information upon request.



The standard doors of America, made in the special Morgan way from special woods by special machinery. Morgan doors are specified and recommended by all leading architects. Built of separate layers of kiln dried wood with the grain running in opposite directions. Shrinking, warping or swelling is impossible.

Each door is stamped "MORGAN" which guarantees quality, style, send for a copy of our elegant new catalog "The Door Beautiful"—just out—full of page illustrations of interiors and attractive exteriors in all styles, showing Morgan Doors and their surroundings—tells why it is the best kind of economy to use Morgan Doors throughout your building.

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Convention of "Speedwell" Dealers

On December 11th and 12th the Speedwell Motor Car Co., Dayton, Ohio, brought their truck dealers from all parts of the country to the factory for a convention. They paid their transportation and expenses while there, because they feel that thus they can give an intelligent understanding of truck conditions and ideal truck selling methods.

It is the opinion of the "Speedwell" people that trucks should be sold only to concerns who will unquestionably profit by their use and that trucks should be so represented before the sale is made that the purchaser will be acquainted with every probable item of expense connected with their operation and maintenance.

Variety of Motor Trucks at Garden Show

Several makes of motor trucks that are entirely new to the market will be exhibited for the first time at Madison Square Garden, New York, during Part II of the automobile show, Jan. 15-20. These are the Locomobile, Lozier, Pope-Hartford, G-M-C Electric, Speedwell and Bronx Electric. The four new gasoline machines are of the heavy truck type, designed along standard lines, with four-cylinder motors located in front under a hood or beneath the driver's seat.

These supplement the commercial cars that were introduced by well-known passenger car builders at the Garden show last winter, as the Peerless, Pierce-Arrow and Stearns; and also those exhibited by old-time companies long identified with the commercial vehicle branch of the industry. In all, there will be two dozen makes of gasoline vehicles and eight makes of electrics on exhibition.

While this show includes the products of long-established companies that are qualified by experience, manufacturing facilities and ample capital to build first-class machines, there will nevertheless be the greatest diversity in design. Whether a man conducts a florist shop in a village or sells coal to fac-

tories, hotels and office buildings in the Metropolis, he will be sure to find at the show a type of vehicle suited to his needs.

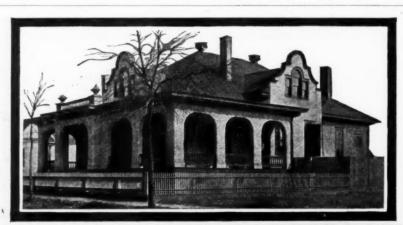
There will be about one-hundred models on display, ranging from a 600-pound package cart selling for about \$650 to seven-ton and ten-ton trucks worth more than \$5,000. The engines that drive them include one-cylinder vertical, two-cylinder horizontal opposed, and four-cylinder vertical types. Some have the cylinders cast separately, others in pairs, and still others have four cylinders cast en bloc—that is, in one piece. In power they range from ten to sixty horsepower. Disc clutches, both dry and running in oil, divide favor with the cone type. Transmissions include the two-speed planetary gear, progressive and selective sliding gear in three and four forward speed types, and friction wheel and disc.

The electric vehicle also range from small 600-pound closed delivery wagons to massive five-ton open body trucks. They are driven by single motors and equipped with light or heavy duty batteries which give them mileage capacities of from forty to seventy-five miles on a single charge.

Bodies will be seen in endless variety, because both gasoline and electric machines are made as independent classes on which any desired style of body may be mounted. Of special interest, however, will be the dump trucks for contractors' use, fitted with bodies that can be tipped by power from the motors; trucks equipped with power winches for hoisting purposes; motor fire engines, hose and chemical trucks, patrol wagons and other municipal vehicles.

Copper Clad Steel Nails

For over a hundred years various attempts were made, but unsuccessfully, to develop a commercially practicable process of welding copper and steel, and the general conclusion was reached that this was a physical impossibility. The molecular structures of the two metals are so different that a direct welding of one to the other is a hopeless task.



CORTRIGHT SHINGLES

Three Reasons Why Cortright Metal Shingles Appeal to Contractors and Builders

First—They're inexpensive—cost less than slate, and no more than wood in many localities. Besides they make a permanent roof.

Second-

Cortright Metal Shingles

are easy to lay—your ordinary workmen can put them on more rapidly, and make a better job than with either wood or slate.

Third—They satisfy the house owner, because they're fireproof, stormproof and durable, therefore you establish good will and future business.

A special proposition to Contractors and Builders is ready. Write for it today.

CORTRIGHT METAL ROOFING COMPANY PHILADELPHIA and CHICAGO

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HOLLAND



In the Holland Air Admitting Fire-pot the fuel burns from the sides and over the top—Natural Way.

This feature sets the "Holland" Furnace in a class by itself.

For fuel economy by burning everything combustible, in any kind of fuel, soft coal slack, hard coal screenings, wood or coke. This cuts coal bills in half.

For cleanliness, there are no internal explosions and puffing, no opening of joints

causing leakage of coal gas. For durability, the castings are evenly heated, which makes the "Holland" almost repair proof and the fire-pot will outlast any other kind made.

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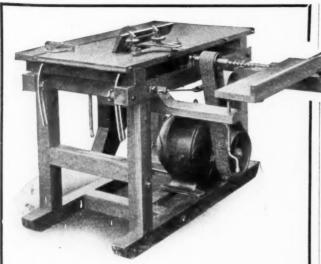
means correct installation and

saving in first cost.

Send us your floor plans for quotation and correct heating plan.

Trying us is buying of us and "Holland Furnaces Make Warm Friends"





"AMERICAN" CONTRACTORS PORTABLE SAW BENCH

The purchase of some machines is a mere extravagance, because they earn nothing.

The purchase of an "American" saw bench

is a true economy, because its use means a saving of time and labor, an improved quality of work, and better business all around. Moreover, the "American" Bench is built to be per-manently profitable. It has the qualities which Moreover, the give it lasting power even under hardest service.

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Practical—Durable—Artistic—Inexpensive.

It has perfect water-proofing qualities, and great resistance all destructive agencies, INCLUDING FIRE.

To become acquainted with this up-to-date material, send for Samples and Booklet (A C and B).



Bungalow of Mr. W. W. Kercher, Orchid Place So. 7th St., Goshen, Ind. Burmite Material (Slate-Red) for Roof and strip at "Stoddard" Slate-Green for balance of Siding.

Ivory White Wood (4 in.) Panels.

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The result, however, can be accomplished indirectly, through the medium of an intervening layer of iron-copper alloy, with which both metals can be made to unite by welding.

This basic principle was discovered, after long experimentation, by a French metallurgist and chemist, M. John Ferreol Monnot, between 1900 and 1905; and on this foundation the Duplex Metals Company of Chester, Pennsylvania, was organized.

"Copper Clad" is the general trade name for the product marketed by this well-established firm, among which are Copper Clad Steel Nails, in which carpenters and builders will be especially interested.

Among the well-known properties of copper are its toughness and its power of resisting corrosion. Steel has great tensile strength and elasticity. Evidently, in Copper Clad steel nails we have a product that combines the advantages of both metals, and is preferable in certain situations and under certain conditions to all-steel or all-copper. They are sold under a guarantee of tensile strength, perfect weld between copper and steel, and rust-proof quality. These nails are not dipped in copper or plated; but by the special process above referred to, the molten copper is permanently welded to the steel, the result being a heavy surface of copper over the steel core. The nails will stand hard driving without bending, are rust-proof, and have long life under the most exacting conditions. For roofing, cornice work, and building purposes generally, their special advantages commend them to the attention of carpenters and contractors.

The "Copper Clad Handbook" tells the whole story of this well-founded enterprise. It cost a lot of money to get out. but will cost you nothing. Write for it.

Double Your Capacity

How to increase the output of his mill without a large expenditure of money is a problem which often perplexes the average mill man. He realizes that under existing conditions he should have an added output to enable him to successfully meet competition. He, however, feels that he can not at this time invest in new machines, much as he needs them.

It is to such a man that the Shimer Double Ceiling and Double Flooring Heads should appeal very forcibly. By their use the capacity of a matcher or moulder may be doubled. The stock is run with double tongue and groove and then re-sawed into two marketable strips. The Bits on the Shimer Double Heads mark the saw cut line of division on the stock; so that the sawyer can at once detect any variation of the saw and correct it as the board is passing through.

These Heads are no experiment, but have been on the market long enough to be in use in a large number of the best mills in this and other countries. They will be found to be very complete and practical tools, carrying the Shimer guarantee to do as represented or no sale.

As an investment of \$33.08 and upwards will give you about 100 per cent gain in output, why not send today for full particulars in reference to these tools. Address Samuel J Shimer & Sons, Milton, Pa.

To the Man with the Abused Knee-Cap

Something that fills a long felt want has come to our notice. It will appeal to those of our readers who have suffered knee aches and even incapacity for work through the necessity of having to kneel much in the course of their daily work. It is nothing more or less than a recently patented pneumatic knee-pad weighing some five ounces each.

They are made of tough leather, water proof, between which are "inner-tubes" with regulation valves. The pads are attached just below the knee joint in a moment and do not hamper the user's walking or climbing in the least: in fact their presence is not manifest until they are needed.

TERNATIONAL



This Library of Architecture is part of the 105 volumes of the International Library of Technology that cost over \$1,500,000 in its original preparation. It contains the results of years of experience of the best building experts in the country. It contains the best modern practical methods used in every branch of architecture. The matter has been written by the foremost technical building experts and illustrated by a special staff of artists and craftsmen. Not only is this Library suited for architects already well trained in their profession, but it is especially adapted for the use of laborers, carpenters, and contractors that wish to acquire in the easiest and most thorough manner the knowledge that will qualify them for advancement. This Library is the only practical technical library in existence wherein the subjects treated can be readily understood and practically applied by persons having no knowledge of higher mathematics.

The volumes of the International Library of Technology are used and indorsed by 95 of the leading colleges and universities throughout the country. They are also indorsed by leading engineers. An example of these indorsements is to be found in the statement of

Frank L. Mueller, Assistant Secretary of the O'Rourke Engineering Construction Company, of New York, who states: "Some time ago I received several volumes of your Library of Technology, and it will certainly give you pleasure to know what I think of these books. I have at my disposal a reference library containing more than one thousand engineering books, but I must say that none of these works contain the information generally desired in such concise and simple form as the volumes of your Library of Technology."

A partial list of the subjects contained in the Architectural Library is as follows: Excavating, Shoring, and Piling; Footings and Foundations; Areas, Vaults, and Retaining Walls; Cements; Concrete Construction; Stone Masonry; Stone Arches; Carpentry; Mechanics of Carpentry; Joinery; The Steel Square; Building Stone; Lathing, Plastering, and Tiling; Common Brickwork; Ornamental Brickwork and Terra Cotta; Lighting Fixtures; Use and Design of Lighting Fixtures; Architectural Design; Building Superintendence; Specification Writing; Specification-Writing Memoranda; Estimating and Calculating Quantities; Contracts; Permits; Fireproofing of Buildings; Stair Building; Ornamental Metal Work; Builders' Hardware; Roofing; Sheet-Metal Work; Mill Design; Loads in Structures; Properties of Sections; Materials of Structural Engineering; Beams and Girders' Columns and Struts; Details of Construction; Graphical Analysis of Stresses; Roof Trusses; Statics of Masonry; Heavy Foundations;

Stresses; Roof Trusses; Statics of Masonry; Heavy Foundations; Retaining Walls; Fireproofing; Roof-Truss Design; Wind Bracing; Specifications; Geometrical Drawing; Projection Drawing; Freehand and Ornamental Drawing; Wash Work and Brush Drawing; Elementary Perspective Drawing; Architectural Drawing; Painting and Interior Decoration; History of Architecture and Ornament.

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Thin Steel Knives

for planing and surfacing lumber are being adopted by many of the largest and best mills in the country, as well as the smaller progressive mills. These knives are made from a special brand of steel, which in the old, heavy slotted fashion would be too costly to use. A thin blade, however, can be made of this special steel at a cost very little in excess of the ordinary machine knife.

One of the best grades of this kind of knives and the one which is perhaps in most general use is the Bedee Brand manufactured by Samuel J. Shimer & Sons, Milton, Pa. This special self-hardening steel knife under the Shimer treatment, is very dense in grain, strong and tenacious, well calculated to withstand the knots as well as the fibrous crossgrain which is characteristic of the lumber of some localities.

The time lost in stoppages to sharpen up the old-fashioned soft slotted steel knives, will soon pay for the Bedee Knives because they hold an edge from one to five days at a single sharpening, according to the class of lumber they are used upon.

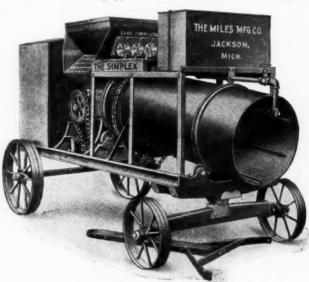
Bedee Knives are recommended by users as the best that can be procured. They are furnished by Samuel S. Shimer & Sons in any length or thickness, and it will be to your interest to write them for particulars and prices, stating your requirements

1912 Model Simplex Mixer

The Miles Manufacturing Company of Jackson, Mich. ,announce the completion of their new Improved 1912 Simplex Mixer which embodies several very strong features. It should be considered carefully by the contracting trade.

The machine is built very strong and heavy, the frame being constructed entirely of steel with the exception of the engine housing and two small platforms. They have combined in this one machine the good features of the continuous feed and the rolling mix.

The machine is equipped as illustrated, with three hoppers

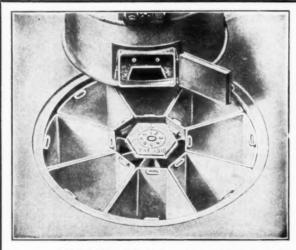


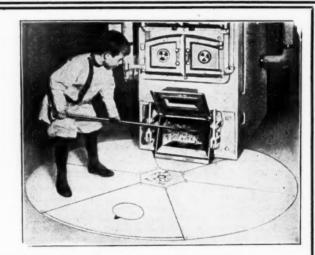
1912 Model Simplex Mixer

for handling sand, gravel or stone. These different materials are all conveyed into the mixing drum absolutely continuously, which makes a fairly thorough mix before the materials ever start on their rolling course through the mixing drum.

They have also added to this machine a positive and accurate proportioning device which is firmly locked into position so there is no possibility of an inaccurate proportion.

The cut illustrates the mixer with the sand shields re-





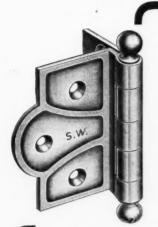
AT LAST, A Solution of the Ash and Garbage Nuisance. These Pictures Tell the Story

THE SHARP Rotary Ash and Garbage Receiver

is the only efficient system for eliminating the dust and drudgery of ash removal and properly caring for garbage, waste and refuse matter. So simple a child can operate it. Efficiency and satisfaction guaranteed. Easily installed in any building, old or new, in connection with Hot Air, Hot Water or Steam Heaters, before or after placing same. Does not require salesmanship. Idea easily grasped. Value must appeal to every intelligent person. The most valuable acquisition to house construction in recent years.

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No. 160

Ornamental Surface Butt

UNEQUALED IN QUALITY

Time and Labor Saved and the Owner Satisfied

With these butts it is not necessary to mortise the door, as the ornamental leaf screws on the surface.

The Butts can be changed to either right or left hand by simply unscrewing the slotted tip and reversing the pin. A screw driver is enclosed with each box that fits the slot in the tip, and can afterwards be fastened on your key ring.

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THE STANLEY WORKS NEW BRITAIN CONN.



The CORBIN DOOR CHECK =1911 MODEL =

For either right or left hand without change. Automatic hold-back. Easily adjusted. Sizes for all requirements. Circular BK89 with full particulars on request.

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How to proportion them

How to form product

How to cure product

Ways of making product

Weights of materials

Ways of making product

Weights of materials

Table of compression

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 ESSES—how they are built in different sizes—for hand or power—combined for brick and classes—about their wonderful capacity and pressure, or their labor saving and profit making to the concrete business.

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In the first place we carry at all times the largest and most complete line of tools and builders' hardware in the West, so we seldom have to hold up an order because something is "out of stock." And this huge assortment (including the well known brands) gives you the greatest possible choice of kinds and prices.

Then everything coming in one lot means a saving in shipping charges and bookeeper's time, and insures quicker delivery.

Altogether, you will find it more convenient, more satisfactory and cheaper to place your entire order with ORR & LOCKETT—"for over forty years the leading hard ware dealers of the West."

Let us hear from you

ORR & LOCKETT HARDWARE CO

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CHICAGO

moved showing the simplicity of the gearing. All three feeds are controlled by a clutch which may be stopped or started at will without interference with the mixing drum.

Contractors desiring to purchase an up-to-date equipment will do well to write to the Miles Mfg. Co., Jackson, Mich., for their new 1912 catalog.

New Cabinet or Smoothing Planer

The half-tone cut and diagram represent the latest Improved Cabinet Surface Planer of the H. B. Smith Machine Co., Smithville, N. J., as they now prefer to build it. This machine as regularly made is fitted with their Patent Sectional Feed Rolls, Patent Sectional Chip-Breakers and New Round Head with Self-hardening Cutters. The sizes or widths machines will plane will be indicated in the condensed information, page 116.

It will be noticed that these machines are extra heavy as compared with other cabinet planers on the market. The machines are very finely constructed, are very strongly driven, will do the finest kind of smooth planing, and will handle perfectly all work within the dimensions named for each machine.

The frame is cast hollow including the front and rear cross-girts, which is a stiff form of construction, hence the working parts are supported in a most substantial manner.



Left-Hand Front View of H. B. Smith Mach. Co.'s No. 32-C 30-Inch Heavy Cabinet Plainer. With Round-Head, Having Four Self-Hardening Cutters, Patent Sectional Feed Rolls, Patent Sectional Clip-Breakers, Power Hoist and Provision for Jointing and Grinding the Cutters on the Machine

The bed is heavy and deeply ribbed, and has a vertical movement of full 7 inches on long inclines which extend from the front to the rear end of the framing, hence it is very rigid and solid. The vertical adjustments are accomplished by both hand and power, and a lever on the front left side operates a friction clutch for raising the bed by power; and all sizes of these new machines have two screws for operating the incline-planes.

The feed is started and stopped by a belt-binder which is hinged on a trunnion independent of the shaft, a gravity locking bar serving to keep the feed belt taut. Provision is made for two rates of feed, viz: 20 and 30 feet a minute, but additional rates of feed may be had by additional pulleys.

The patent feed works consist of four 5" feed rolls, two above and two below in the table, and all strongly driven. The first upper feed roll is made in sections. The front and rear rolls are now 13½" apart from center to center. The chip-breaker as a whole has a parallel lift for full depth of cut, a deeper cut than 5% of an inch being prevented by a limiting bar in front of the feed rolls.

The sectional feed rolls are a modification of their former plans, and are covered by the same patents. The sections are now made 2" wide and each section is given pressure by

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THERE is a free sample of Utility Wall Board and a handsomely illustrated book of interior designs waiting for every reader of the American Carpenter and Builder.

If you havent had yours

Write for It Today!

Ten thousand carpenters and builders all over the country are using **Utility Wall Board** regularly—They are making more money—Their work is easier and their customers are better pleased as a result.

Utility Wall Board is extremely tough and durable—Takes the place of lath and plaster—Is easy to put up and makes a wonderfully attractive wall or ceiling when it is up. Positively moisture-proof—Will not shrink or warp—Lasts as long as the house does.

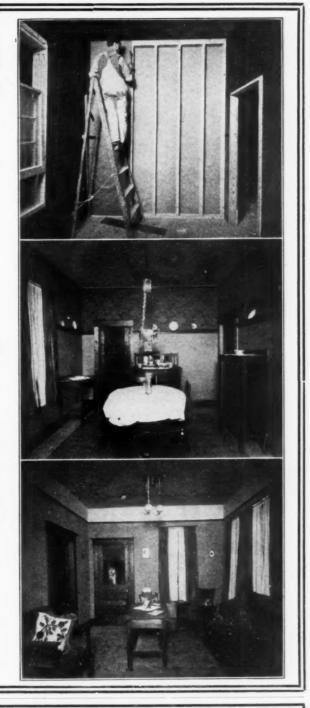
Every carpenter and builder needs it every day of his life.

Write today for your sample.

THE HEPPES COMPANY

4503 Fillmore Street

Chicago, Illinois





This is the "Excelsior" Brad Set

A tool that will drive and set brads and finishing nails in places inaccessible without it, and indispensible to the Carpenter, Pattern Maker, Picture Framer, Electrotyper; in fact, all who use small brads, finishing nails or tacks. The tool is made in four sizes. No. 1 takes No. 20 and No. 18 brads up to 34-inch long; No. 2, No. 16 brads 34-inch long; No. 3, No. 14 brads, 34-inch long, and No. 4, No. 14 brads and finishing nails up to 2-inch long. Nos. 1, 2 and 3 retail for 25c each, and No. 4 for 5oc. If your retail hardware dealer does not carry these tools in stock, they can be procured at the prices above given from

The Standard Tool Supply Co., 42 West 15th St., NEW YORK CITY



Top View of Cabinet Planer, Showing Grinding Attachment and Implement for Holding Head while Grinding the Knives to the Proper Cutting Angle After Being Jointed

a spring of limited movement which causes a double roller over, each section to give the necessary pressure to each section so as to insure a positive feed, and this without the usual internal springs. Any section of the feed-roll can be raised 1/4 of an inch before it will commence to lift the whole roll, hence pieces varying in thickness to that extent can be planed perfectly side by side of any width.

The front feed-roll in the bed is connected by expansion gearing to the same shaft above which drives both ends of the upper feed-roll. This expansion gearing is covered by their patent gear-casing, and motion is communicated to the lower discharging roll by an automobile chain from a sprocket on

the opposite end of the lower front feed-roll. The upper discharging feed roll is driven by an automobile chain from the upper driving shaft which takes its motion from a lower shaft to which it is geared, and this latter shaft gets its motion from a belt and binder from the countershaft on rear end of machine, which in turn communicates direct with the cutter head by a belt. Hence the feeds always maintain a relative speed with the cutter-head, which insures perfect equality of surface.

The gears are now cut carefully to pitch so as to run smoothly and to be durable. The pinion-gears are of machinery steel forgings, and none of them run on studs.

The sectional chip-breakers which are made to correspond of the sectional feed rolls, are of the same width (2") and each section will also lift ¼ of an inch against a limited spring before the whole bar raises.

The rear pressure-bar is of forged machinery steel and has the necessary adjustment to compensate for the frequent jointing of the knives.

To meet a popular idea and also on account of some advantage in construction, the cutter head is made round, as this form facilitates the application and care of thin airhardening cutters with which this machine is preferably fitted. The new head is grooved to carry four thin self-hardening cutters. A head and cutters of this character require special facilities for jointing and grinding the cutters so that all the knives will cut.

The jointing bar is placed directly over the head and arranged so that the jointing tool can come in contact with the running head and thus joint all of the cutters level to the planer-bed.

The bearings of the cutter-head are an improved modification of the White Patent Clamp Box, and are 23%" diameter x $11\frac{1}{2}$ " long. The countershaft bearings on the machine

SPECIFY McCRAY REFRIGERATOR

The kind of refrigerator for you to recommend to the home builder is one which will always give perfect satisfaction. McCray Refrigerators are known for quality the world over because they are made by experts of long experience in the business and because they are advertised constantly the year round.

Dozens of Superior Features

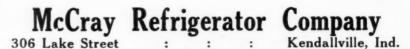
The positive cold, dry air circulation, the outside icing arrangement, the absence of all odors, the sanitary cleanliness and convenience of the linings, the ice-saving insulation, the beauty of the wood work, all make an irresistible appeal to your clients, who will thank you for calling their attention to the McCray.

Our refrigerator draftsmen are employed to co-operate with you in drawing up specifications of refrigerators of the proper capacity to meet the requirements of the home on which you are working. Simply send us a rough sketch of the floor plan with proper dimensions, and we will

gladly submit designs and blue prints so you may take the matter up with the owner.

McCray Quality

McCray Refrigerators are made for all purposes. Send for free books: No. A. H. Built to order for Residences, No. 88 stock sizes for Residences, No. 67 for Grocers, No. 59 for Markets, No. 48 for Hotels, Clubs and Institutions, No. 72 for Florists.







Asbestos "Century" Shingle Roof-Quintard Estate, Portchester, New York, Reroofing contractor, John Gery, Paterson, N. J.

Asbestos "Century" Shingles "The Roof that Outlives the Building

Your clients will pay just about the same for an Asbestos "Century" Shingle roof as for any other roofing that is ordinarily put on first-class buildings.

But consider their durability—their immunity from fire k—their freedom from repairs and painting—

You find that Asbestos "Century" Shingles are the cheapest roofing known to the building trade.

est roofing known to the building trade.

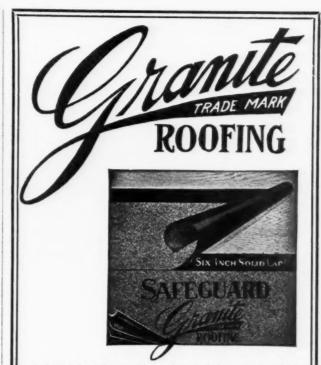
Two hundred million Asbestos "Century" Shingles were sold last year at a price that enables the architect and builder to specify them in competition with other roofings—and brings us a conservative profit on the cost of making.

You can get Asbestos "Century" Shingles in shapes to suit any architectural scheme—in several sizes—and in three colors: Newport Gray (silver gray), Slate (blue black) and Indian Red.

Send for quotations, and booklet "Everlasting 1911".

Keasbey & Mattison Company, Factors

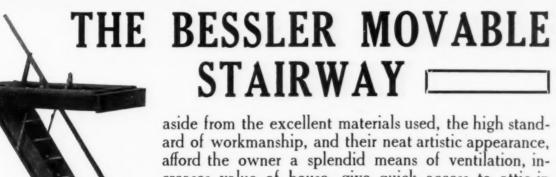
Ambler, Pennsylvania
Branch Offices in Principal Cities of the United States



A six inch lap is better than a three inch lap. It gives better protection against leaks and permits nailing down on the under sheet only, so that no nail heads appear on the surface. Otherwise this is the same Granite Roofing that we have sold for 25 years for use on great factories. It is immune from damage by coal smoke or cinders, and it has a sea grit surface which makes painting entirely needless. Behind it is a reputation that has Passed the Quarter Century Mark.

EASTERN GRANITE ROOFING CO.

19 Battery Place, New York



THE BESSLER STAIRWAY IN POSITION

afford the owner a splendid means of ventilation, increases value of house, give quick access to attic in case of fire and at the same time saves space which would otherwise be unavailable with the common stationary staircase.

Architects and Builders recommend it on account of its low cost and desirability.

Can be easily installed in any house already built at a very

small expense. Send for folder giving prices and details.



Panel in Ceiling-Looking Up

The Bessler Movable Stairway Co.

AKRON, OHIO



Lemoyne, Pa., Nov. 25, 1911.

Mr. F. B. Brunner.

Dear Sir:

Three years ago I purchased a No. 10 Coltrin Concrete Mixer which did me great service, but desiring a machine of greater capacity, I sold the No. 10 in September, 1909, and purchased a No. 9, and in March. 1911, bought a No. 12 Coltrin. These two machines I have been using almost constantly and have only paid about \$13.00 for repairs.

They do perfect mixing and are a great labor saver for the contractor.

Yours Resp., S. B. LEACH

Here is the Reason Why

The COLTRIN excells all others in thoroughness of

The cylinder that turns in the mixing shell has 7 blades 11/4" wide.

This cylinder revolves 35 times per minute, and that means the material being mixed is cut through, lifted and turned over at the rate of 245 times per minute.

Now Think This Over

On the mixing board you aim to have the material cut over with shovels three or four times and then consider it ready to place.

The COLTRIN cuts it through and turns it over

4 TIMES EVERY SECOND

(First Dry-Then Wet)

THE WHOLE LENGTH OF THE MIXING SHELL.

This is why the COLTRIN gives a perfect distribution of the cement throughout the mass

The Coltrin Continuous - Batch Mixer Shipped Anywhere on Five Day's Trial

SEE THEM AT THE **NEW YORK-CHICAGO-KANSAS CITY CEMENT SHOWS**

Write for Catalog "W"

THE KNICKERBOCKER COMPANY JACKSON, MICHIGAN

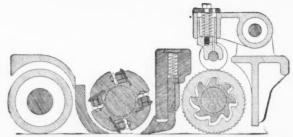


Diagram Showing Relative Position of the Feed Rolls, Cutter Head, Chip Breaker and Pressure Bar, and Incidentally Showing Construction of New Round Head, Patent Sectional Chip Breakers and Method of Giving Pressure to Patent Sectional Feed Rolls

are now compensating and self-lubricating.

Equipment. In addition to the jointing and grinding tools there are small instruments for setting the cutters and for holding the head in position while grinding the knives; and for withdrawing the cutters to the normal cutting circle.

Model	Sizes Will Plane	Weight in lbs.	Floor Space Required	Size of T. & L. Pulleys	Speed of C. S.	Aver- age H. P.
No. 34-C	30 x 7 in. 36 x 7 in. 42 x 7 in.	5840 6240 7000		14 x 8 in.	1000 Revs. 1000 Revs. 1000 Revs.	12 to 15

All machines are fully tested before leaving the works, and warranted to be as represented. They may be returned free of expense within thirty days after date of arrival at destination if not satisfactory, and the money shall be refunded.

Address H. B. Smith Machine Co., Smithville, N. J., U.

New Hupmobile Presents Many Unique **Features**

The latest offering of the Hupp Motor Car Company-a thirty-two horse power, long-stroke, five-passenger touring car-embodies many features new to this country, and is also stamped unmistakably with the same individuality that has always characterized the Hupmobiles.

The new model is by E. A. Nelson, the creator of the original Hupmobile runabout, who has been responsible for the unique style and character of the Hupmobile line from the outset.

Body, cowl, and hood have the appearance of an integral piece, and show the pronounced sweeping effects of straight line construction.

The wheel base is 106 inches and the center of gravity is exceptionally low, thus making for steady balance and tire economy.

Great pulling power at all speeds, absence of noise and vibration, economy of fuel and oil are some of the advantages claimed for the small-bore, long-stroke motor. This unique design is in high favor among the foremost European engineers, but has never before been applied to an American

The motor is four cylinder, water cooled, 31/4 inch bore by 51/2 inch stroke. The cylinders are cast en bloc. Valves are all on one side. Their operating mechanism is of the latest type; quiet, accessible for adjustment, yet completely enclosed by a pressed steel cover, which keeps oil in and dirt out. Inlet and exhaust manifolds are cast with the cylinder block. Connecting rods are high grade forgings secured by

The crank shaft has three liberal bearings. They are bushed with antifriction metal cast in bronze shells. These bushings are split and are readily adjustable. The hardened and ground cam shaft is carried in three large large bearings

Ignition is by high tension magneto, located under the dash, with all working parts accessible from the seat.

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HOW TO READ PLANS



Charles G Peker

80 Pages (5 x 7 Inches) 43 Drawings in Text 8 Large Folding Plates Handsomely Bound in Cloth

PRICE, 50 CENTS

Sent post-paid on receipt of price.

Your money back if you are not pleased.

ANY building mechanics are handicapped from getting more pay because they are unable to read plans and work from a drawing.

It is for these men that this book was prepared, as it simply explains the meaning of the various lines; plans, views, elevations, sections, scales, blue prints, devices, symbols, etc., to be found on a set of plans.

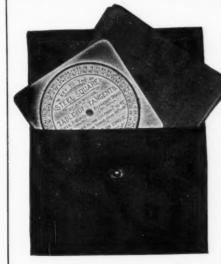
The book is finely illustrated by 43 illustrations in the text, and 8 large folding plates giving the full plan of a 6-room frame house. This set of plans alone is worth many times the cost of the book; an architect would charge at least \$25 for their equal.

cost of the book; an architect would charge at least \$25 for their equal.

It is one of the most valuable books ever got out for building mechanics, as its information means increasing a man's salary. It is pretty safe to say that to the man who cannot read a drawing now this book will mean at least \$50 more pay during the first year he has it.

INDUSTRIAL BOOK COMPANY **NEW YORK** 178 Fulton Street,

ALFRED W. WOODS' KEY TO THE STEEL SQUARE.



This is it.

The Key, Book of Instruction Morocco Case.

Full Size 4x5 inches.

It tells the whole story of how to use the common steel square for all kinds of framing.

Price \$1.50, Postpaid = American Carpenter and Builder

185 Jackson Boulevard, CHICAGO

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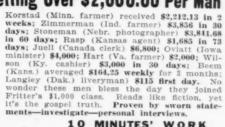
talking to YOU!

5,000 Men Will Get \$1,000 Each

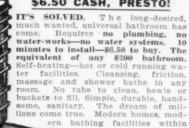
You, by acting now—today—can get the thousand allowed to your section. This money—\$1,000 or more, per man—goes to mechanics, clerks, farmers, preachers, doctors, lawyers, teachers—people from all walks of life—any man, anywhere—up to 5,000, who is willing to join Fritter's \$1,000 class. Nobody barred. Not a fairy tale, fake or humbug; for listen—it's going on daily—hundreds have received their thousand—some many thousands. If you can use \$1,000—real money—payable \$35 to \$75 weekly—say so—don't hesitate—don't delay a minute; but get the thousand-dollar hustle—get your first \$1,000—first start, first taste of real independence—power, influence, luxuries—get these through Fritter, just as hundreds have done. Poor men joining his wonderful \$1,000 class

Without Capital — Without Experience —starting with only their nerve—finishing with thousands; yes, thousands of dollars. You, if willing to join hands with Fritter, can easily enjoy same abundant prosperity. Knowing the reason dispels all doubt—creates confidence—en-

Class Getting Over \$2,000.00 Per Man



10 MINUTES' WORK \$6.50 CASH, PRESTO!



ern bathing facilities within the easy reach of every man, woman and child in the land. No experiment. Used by U. S. Government. Over 200,000 delighted customers. With such selling rights, with Fritter's help und to make from \$1.000 to \$5.000.

Sectional View of "Energizer." in article, with exclusive and your nerve you're bound to make from \$1,000 to \$5,000 this year. It's not a question of ability, location or capital (for we give credit to active workers) but whether you act quick enough to get into Fritter's \$1,000 class. Once in you're good for \$1,000 anyhow. Reese solicited 60 people—sold 55; MacDaniels 20—sold 19; Lodewick 41—sold 39—17 orders in one day; Hart "16 in 3 hours;" Wilson, "102 in 14 days."

Address Fritter personally today — make him prove his claims and above all that you too can get \$1,000. Don't accept anything without proof. First get Fritter's entire proposition—it's free. Then decide. Just a postal will do.

M. FRITTER, Secretary and Treasurer ALLEN MFG. CO., 3442 Allen Bidg., Toledo, O.

Thermo-syphon cooling is employed. The radiator is a genuine square tube of ample capacity, and is assisted by a large belt driven fan. Water pipes are unusually large. Only one short piece of hose is used, all other connections being metal.

The carburetor is automatic under all conditions and without adjustment, and is positively fed from a tank under the

The clutch is of the multiple disc type, with tempered and ground saw steel discs running in an oil bath. In design and in size it resembles clutches used on fifty and sixty horse power cars. Spring tension is readily adjustable. A clutch brake is provided to make gear shifting easy.

Three speeds forward and a reverse are obtained by the sliding, selective system, operated by a single hand lever

with heavy interlock.

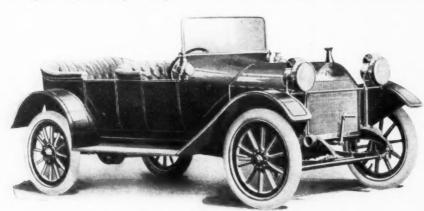
The gear shift lever and the emergency brake lever are in the center of the car, at the left of the driver. They are placed far enough forward to allow of passing readily from one side of the car to the other.

Connection to the rear axle is by a shaft with a single universal joint, enclosed in a tapered tubular housing which is globe jointed to the transmission case. The rear axle is of the full floating type.

The gears are of coarse pitch, wide face and have an unusually large number of teeth. They are high grade steel carefully hardened and mounted on high duty roller bearings of more than ample

size. Annular roller bearings and ball thrusts are used throughout. The axle casing is built up from a central casting and tapered flanged steel tubes. This makes the strongest and stiffest axle possible, without need of truss rods.

The pressed steel frame is unusually sturdy for a car of this size. It is so designed as to harmonize with the body lines. The frame is of pressed steel, the body of sheet metal. Has very deep upholstery and provides ample room for five passengers. Mud guards, running boards, and all

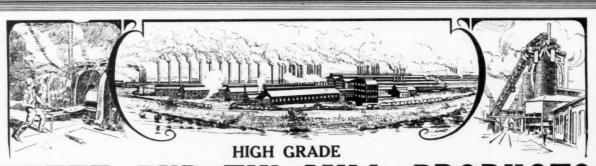


New Model 32 H. P. 4-Passenger Hupmobile

dash cowl.

Engine and transmission are a unit, their working parts being enclosed in a one-piece case of the highest grade aluminum alloy. This unit is supported in an unique manner on a pressed steel pan.

The fly wheel is flanged to the crank shaft at the rear of the motor. It runs in a bath of oil and by means of its centrifugal force feeds filtered oil to all parts of the engine, clutch and transmission.



SHEET AND TIN MILL PRODUCTS

Apollo Best Bloom Galvanized Sheets
Black Sheets of all Descriptions
Tin and Terne Plates
FORMED ROOFING AND SIDING MATERIALS

Write for full information on MF, the most popular terne plate manufactured, also American, American Old Style, American Numethod, and Continuous Roofing Tin. Apollo Galvanizad Sheets are popular with particular builders everywhere.

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Accuracy and strength together with simplicity, combining to make the best Mitre Box you can buy. The open front is only one of many strong features found only in the Union. To those who wish the most for the money, send for our Circular A. We also make a very simple and handy Floorscraper. Watch next issue for something new in your line.

DOSCH MFG. CO.

Bridgeport, Conn.

1½ Horse Power For 1½ Hours For 1½ Cents

We know this Caille Perfection Special to be absolutely the greatest engine value on the market. Built by automobile men with automobile machinery-runs economically on kerosene or gasolineyour two hands the only tools you'll need. The simplest construction of any power plant—your 14-year-old boy can take care of it. Made of the finest material, every moving part works as smooth and sweet as a watch. Our free book tells how we make a better engine at a lower price than our competitors. Write for free book and 15-day free trial

Caille Perfection Motor Co.

317 Second Street

Detroit, Mich.





CARPENTERS

In the booklet "Simonds Guide for Carpenters" you are told some of the true facts about the very high quality of Simonds Hand Saws. Made of Simonds Steel. You are also given a mass of useful Carpenter's information. A copy mailed FREE if you mention this paper and write today.

Simonds Mfg. Co.

FITCHBURG, MASS.



Mr. Contractor and Builder

Why not equip the home or other build-ing you are erecting with

Acetylene Lighting?

You can greatly increase your income by selling Davis Acetylene Lighting Plants, for new buildings, and during dull seasons for buildings already erected.

Write us for cost of equipping a building and for our terms as salesmen.

Davis Acetylene Company 90 Crawford St., Elkhart, Ind.

equipment are especially made for the car and harmonize with the rest of the design. Every part is specially built for this car alone, and the assembly forms a compact, efficient machine that is as near perfect as the makers are able to produce.

Booklet on Cross-Cut Saws

It will be worth the while of the readers of the American Carpenter and Builder who value good tools to write Henry Disston & Sons, Philadelphia, and ask for their new booklet on Cross-Cut Saws.

It is probably well known to our readers that Disston saws have been made and used for over 72 years in ever increasing quantities. It is plainly evident that there must be more than ordinary merit in a brand of goods which creates and satisfies the demand over such a period of time.

Ever since this business was founded in 1840 the demand for Disston tools has steadily increased, necessitating from time to time the erection of new buildings and the installation of extra mechanical facilities, until now the Disston Works has become the largest of its kind in the world.

Henry Disston & Sons are proud of the fact that this achievement is simply the result of making service-giving saws: that is the whole story in a few words.

This booklet is full of exceedingly valuable information for the woodworking trades. Write for a copy,



Pocket Sample Spool for the Use of Salesmen in Carrying Simplex Nails traveling salesmen.

Pocket Sample Case for Simplex Nails

The H. B. Sherman Mfg. Company, Battle Creek, Mich., has devised a novel method by means of which its Simplex Roofing Nails may be conveniently shown by jobbers' salesmen. This holder or spool opens for the reception of the Simplex Nail, features of which are the large head and great holding power for prepared roofing. The device occupies but little space, and it will be furnished in sufficient quantities to wholesale houses to equip all of their traveling salesmen.

An Improved Cutter Head

The race for supremacy among the makers of fast feeding flooring machines in bringing out some speedy matchers. To keep a little ahead of the procession where the Shimer Cutter Heads have always lead, and to put in the hands of the mill man a safe and efficient tool for this fast work, the makers have put on the market their new "Shimer Limited" Cutter Head.

In appearance the new Head resembles their older patterns, but differs therefrom in the method of attaching to the



ONE = FOUR

TRADE SIMPLEX MARK

Reg. U. S. Pat. Office

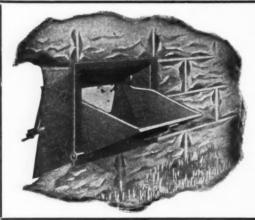
Order your prepared roofing to contain SIMPLEX NAILS.

Sold by Jobbers

One SIMPLEX NAIL has as much head surface as four so-called large headed nails

Head Surface Tells

Manufactured by H. B. SHERMAN MFG. CO., Battle Creek, Michigan



Roenius Wood and Coal Chutes

A NECESSITY TO EVERY MODERN HOME NO MORE DAMAGED CASINGS OR SASH

Roenlus Chutes are equally desirable for houses of low or high cost.

Nearly 20,000 in Use

Safe from outside tampering or entrance and weather-proof. Are easily opened and locked.

Write for Catalog and Our Special 1912 Offer

Grand Rapids Foundry Co.
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Wire & Iron Works

LOUISVILLE,

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Beams, Angles, Anchors, Hangers
Ornamental Cast Iron Fronts and Stairways.

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M. J. GIBBONS Lept. B. Arcade Dayton, O



I Want You to Know about My Guaranteed Winter Chaser Furnace that Actually Cuts Down Your Coal Bill 33 1-3 Per Cent!

Want every reader of this paper—especially those who have so long experienced cold houses—to write me a personal letter or postal card at once for my free book "Twice a Day" which tells you just exactly how to save money each winter on your coal bill. Let me explain to you how this

CAMPBELL'S GUARANTEED WINTER CHASER FURNACE

of mine accomplishes these things—how it is constructed of heavy three-sixteenth inch steel plate, which makes it the most durable and lasting furnace in the world—how it has a patent heat retainer that materially cuts down coal cost—how its big air chamber cuts down coal bilis, and how it actually produces the cleanest, most healthful and most perfectly moist heat that can be maintained in a dwelling. This book will give you every point in detail, and will let you prove to your own satisfaction just how and why these money-saving and health-sustaining features are brought about.

Write Me At Once for FREE BOOK — And Stop Wasting Your Coal—Have a Comfortable, Cheerful, Healthful Home!

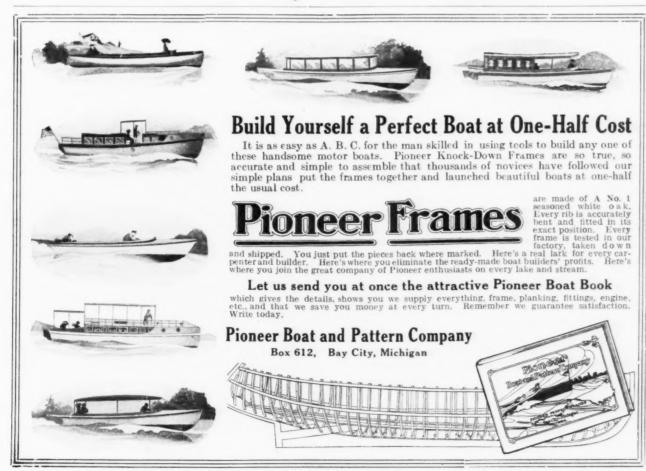
By all means let me hear from you at once on this all-important matter. It not only means a lot of money in your pocket, but it means better air, purer air, and the healthiest kind of air for every member of your family—and this in itself is worth more to you than all the dollars and cents it will save.

Address me personally, and receive this free book by return mail. A. K. CAMPBELL, Pres.,

CAMPBELL HEATING COMPANY.



Street Des Moines, lowa



spindle; in the construction of the bit seats; of the bit designed for faster cutting; in the greater strength of the holding bolts, and in the self-centering device which clings to the spindle when drawn up, securing it firmly thereto.

To match Flooring at the rate of 150 to 200 lineal feet per minute requires side heads of undoubted strength to withstand the enormous centrifugal strains. They must be designed right, materials must be the best obtainable and they must be manufactured with care.

The "Shiner Limited" Cutter Heads are made from Solid Steel Forgings. They are carefully balanced and the Bits are jointed to insure all of them doing their share of the cutting. The pit seats carry a larger areal surface and the bit chambers are of greater depth to compensate for the new acute angle given to the Bits for greater relief to the parts coming into contact with the lumber.

These new tools have eight Bits to each Head fastened with the strongest designed and toughest holding bolts that can be constructed. The spindle gripping device is positive and effective in its purpose of holding fast to the spindle, as also in centralizing the Head.

These toois must be seen at work to be appreciated. Like all Shimer products they are sent on trial, returnable if not satisfactory. Send for a set and give them a try out on your fastest machine. Address Samuel J. Shimer & Sons, Milton, Pa.

Portable Fire-Proof Buildings

A recent development that is meeting with favor is buildings of pressed metal, and portable or semi-portable in their construction. The Metal Shelter Company, 2-23 W. Water St., St. Paul, Minn., have been the pioneers in developing structures of this kind. One of their garages is illustrated

Other buildings for which this system, known as the "Pruden System," is well adapted are summer cottages, contractors' works-offices, implement shelters, ware houses, stores, etc.

It is pointed out by the manufacturers that these buildings are essentially fireproof, substantial in construction and decorative in appearance; at the same time, their cost is not great.

With "Pruden System" buildings no foundation nor framing is necessary. All parts are accurately formed at the factory and are shipped in completely finished unit sections, already to be set up. The sections interlock into a selfsupporting building. The cost is claimed to average fully one-third less than any other type of structure, giving similar protection.

To the wide-awake contractor it is evident that these buildings as supplied by the Metal Shelter Company offer a new and attractive field for business. Take automobile garages alone; the wide-spread demand for fireproof garages,

Montross Metal Shingles We Want You to Become Our Agent—It Will Pay You

Montross Metal Shingles are not only the best and most permanent roofing you can advise your customer to have, but they allow you a greater margin of profit for your work.

That Means-A Better Roof for Him-More Money for You.

Tell your prospective customer how they will reduce his fire insurance rates give him greater storm protection and last longer than any wood or composition roofing made. Fire, Lightning and Storm proof. Won't rattle, crack or blow off. Easily laid—no soldering.

Exclusive Territory Given

This is a chance for live repre-sentatives to make big money Our proposition is the best ever

"Twenty years ago I built my house in Albany, N. Y., and covered the roof with Montross Metal Shingles and the shingles are in excellent condition at the present time.

"Chas. A. Heidrich,
"Architect,
"Schenectady, N. Y."

Montross Metal Shingle Co. 102 Erie St.



Large Facilities, Prompt Deliveries

EAST BANGOR CONSOLIDATED SLATE CO.

East Bangor, Pa.

Roofing Slate Structural Slate Blackboards

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buildtheir Water oping trated

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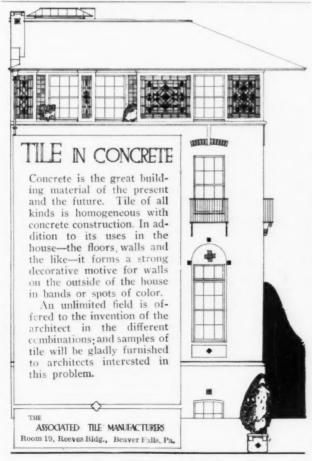
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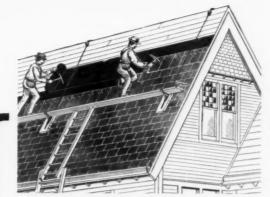
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mobile rages,

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TAKE UP SLATE ROOFING

Carpenters and Builders: Take up slate roofing in unoccupied territory everywhere. It's a money maker. Only a few simple, inexpensive tools and small capital necessary. Slating is easy to learn. Very much like laying shingies. Can be carried on in connection with your present line with no extra trouble or expense and will give good returns. A profitable, growing slate roofing business can be established anywhere. Besides the new work that comes up every year there are simply hundreds of worn-out shingle, metal, tin and composition roofs in every locality that must soon be replaced.

Sea Green or Purple Slate Roofs

OUTLAST ANY BUILDING

OUTLAST ANY BUILDING

They can't wear out, rust, warp or decay. Are fire and spark proof. Reduce Insurance rates. Afford clean cistern water. Don't require constant repairs and attention. Your neighbors are tired of paying good money for short-lived roofing—high-priced shingles that soon decay—tin and metal roofs that cause frequent and costly paint bills—composition and the "oids" roofing that disintegrate. Furnish them with handsome, sanitary, fire-proof Never-Wear-Out Sea Green or Purple Slate Roofs that last forever.

Carpenters and Builders: Take up slate roofing this Spring. You will make good money and please your customers. Write to us at once for delivered prices on slate, tools and supplies and Free book of instructions. Don't Delay. Write To-day.

NOTE—This special proposition does not apply to any territory now covered by a Slate Roofer.

American Sea Green Slate Co. - GRANVILLE, N. Y.

DECO-VENEER Wainscots

Are Ideal in Every Feature BEAUTY-PERMANENCY-MERIT

We manufacture a full line of stock sizes in all foreign and domestic woods from selected stock only. Strips, cap and base complete; ready for immediate installation at a total cost far below ply panels. No mill or cabinet work required.

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both in and outside of the fire limits, makes these portable fireproof buildings easily saleable. It is stated that the profits are large compared with other contracting work.

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Every morning at 7 o'clock the truck is on hand, ready for the day's hauling. Mileage does not figure in the cost of the service to the buyer; but if the truck is kept in use beyond nine hours a day, a charge is rendered one and onehalf times the day rate. The service company is protected



"Speedwell" 4:Ton Truck Climbing Twin Peaks, | San Francisco—Endurance Run Oct. 4, 1911, in which It Secured Perfect Score

against delays resulting from causes beyond its control. This time must be absorbed by the merchant or operating company that has bought the service; and as a further protection 111

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fulfills every requirement of ideal architectural adornment. Its effect is nothing short of imposing. It is light—withstands the ravages of time. Made from artists' own models, or can be selected from our great variety of exclusive stock designs. Has the hearty endorsement of numerous sculptors of note. The cost is far below that of cast or sculptured work.

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to the equipment of the service company, only the rated ton capacity of the truck is carried. Contracts for tonnage were made prior to the time that the service company ordered any Speedwell trucks, indicating that their receipts justified them in putting in this equipment. The first order was for eight 4-ton trucks and two 6-ton trucks to be delivered in six days and twelve 4-ton and three 6-ton to be delivered in six months

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During the night every truck is gone over carefully so that there is no question about it being in perfect condition when it is delivered to the customer in the morning at seven o'clock.

Showing the extent with which this matter has been figured out in detail, the signs on all the cars are standard size and removable so that the merchant can always have it appear that the truck is his own.

The Speedwell Company, in its own dealings with a truck customer, adopt the same policy of figuring costs of operation. This is done in advance, wherever possible, and on a conservative basis, so that when the buyer has his truck in work he discovers, nine times out of ten, that its cost is really less than he had been led to expect from the Speedwell Company's figures.

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Have a steel core to which molten copper is welded.

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Drive like steel and last like copper.

Cost more than galvanized, but less than copper.

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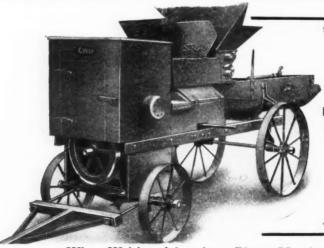
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'Ever Stop To Figure What It Costs To Move? Take any small concrete job, or one that requires frequent moving of mixer to keep it in convenient position for work, with a heavy, cumbersome machine, the profits all go in moving the mixer. That's just one of the economies of the light, portable and dependable

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Its turned shank is gripped more securely than any bit you ever saw; it positively can't pull out; it gives such a long bearing in the brace chuck that you can't detect a sign of "wobble."

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For more years than you probably can remember, the Smith Premier Ty writer has been recognized as One the Two Leaders among standard \$100 typewriters

The Model No. 2, shown here, writes 76 characters, including the alphabet in capitals and small letters, figures, punctuation marks, etc. It has 76 finger-keys, "A key for every separate character." Hundreds of thousands of this model are

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to purchase this famous typewriter for practically one-fourth the makers' price is due to the new Visible Writing Smith Premiers, for which No. 2 Models were accepted as part payment.

By an exclusive purchase we got all of the turned-in No. 2 machines, and are thus enabled to offer the best of them (some but little used) at this unheard-of low price.

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of satisfaction in the typewriter you buy from us is this seal—placed on the machine itself—equivalent to the makers' original



The Other Fellow's Impression

When you receive a pen-veritten letter from a business or professional man in these days, don't you immediately lower your opinion of the sender's importance?

Then how can you afford to send out scribbled correspondence - bills of account - estimates - reports-orders-(whatever your need for writing may be) to represent your business or your-

Typewriting Easily Learned

Anyone can operate a Standard Type-You can learn all you need to know about the machine in one evening

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Speed comes with use: a novice can soon write as fast as a rapid pen-writer (20 to 30 words a minute), and an ordinary stenographer easily typewrites TWICE AS FAST AS pen-writing.

For practical use, year in and year out, there is no other typewriter that will give you better service than the Smith

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The Smith Premier typewriter we offer you has just gone through our Newark factory. Our expert workmen have dismantled the entire machine, examined it thoroughly, and replaced every worn or defective part with a new part.

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Promptness will be wise, for there are only a limited number of these typewriters for sale.

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Please mail me full particulars of the Free Frial Offer of a Smith Premier Typewriter for \$26.00, without any obligation or expense on my part as advertised in the American Carpenter and Builder.

This Tool Will "Pry" Into Anything

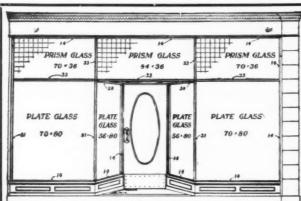
It has the strength and leverage for safely opening packing cases, taking up floors, removing scaffolding and other like jobs that carpenters, plumbers and electricians come up against every day. Sizes 14 and 23 inches. Drop

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"BONNER" Pry Bars

are about the handiest things a mechanic or electrician can keep in his kit. They are the only tools that will do fast housewrecking and save lumber. The only Pry Bar that will pull a nail as high as a man can reach. Dealers make money handling Bonner Pry Bars, nd for samples and prices.

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specify Petz Bars. You will never have to replace them with another make of bar, as they possess strength, safety, and style in advance of any bar on the market.

Wherever used, in large or small buildings,

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have given satisfaction, because of their easy installation, because they conform to the best ideas of style and beauty, and because they do not break glass, or cause the windows to frost.

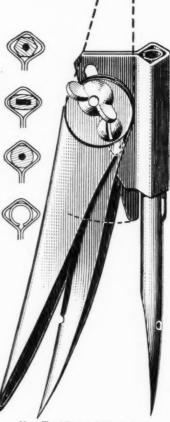
The merchant who has a store front of Petz Bars is sure to be satisfied. Write today for our booklet, "Modern Store Front Construction."

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Sole Makers
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Double Compass and Scriber



New Tool Being Offered by Potter Bros.

The illustration herewith shows a brand new tool—the Peerless double compass and scriber, which has been placed on the market by Potter Bros., 612 W. 110th St.. New York. This tool should be of interest to all carpenters and builders, as it is said to be the first device of its kind ever invented.

This double compass and scriber will hold pencils of any length and of various shapes, which is also claimed as an exclusive feature. The steel point, shown in cut, is of course taken out when pencils are to be inserted. Potter Bros. will be glad to send further particulars and circular on request.

Time-Saving Cutters

For many years woodworkers have been making mouldings by machinery. Some have done the work crudely, whereas others have had

more or less success, but one and all recognized the need of a reliable system whereby the work could be reduced to a positive, inexpensive basis.

Blackened edges, which are frequently seen in hardwood mouldings, indicate the use of inferior tools—tools that friction and burn because they do not have clearance or are not shaped right.

The Shimer reversible Cutters for single spindle Shapers, Variety Moulders, etc., are carefully moulded opposite to the shape to be produced, in such a way as to have only the cutting edges touch the lumber.

These cutters will be found to be complete, inexpensive, time-saving. They are manufactured from a grade of steel which holds an edge for a long time. Being always ready to slip on the machine they will be found to be a great factor in maintaining standard grades as well as a great help in filling orders promptly.

If you send blue prints or samples of your work to Samuel J. Shimer & Sons, Milton, Pa., they will make a careful estimate on Cutters that will soon pay for themselves by saving time and annoyance.

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L. A. Sayre & Son Shingling Hatchet

Attention is called to the improvement made by L. A. Sayre & Son in the head of their special shingling hatchet. The head is made oval, and with 144 points, covering the full surface of the head to the edges, with points. This hatchet is their No. 144.

They are also making lathing hatchets—this pattern—with the same head, as shown in the accompanying illustration. This hatchet is their No. 140.

\$30.00 FOR AN

Adjustable Floor Scraper

From this picture you must know it is a practical It IS a success—a winner—a dandy



I will send you one on approval and let you give the machine a chance to speak for itself in your own

If not more than pleased with its work, ship it back at my expense. I \$30.00, payment in full. If perfectly satisfied, remit

I will make one profit the day the sale is made, but you will make a profit every day you use it.

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A COMPLETE and celar description of the art of building the bodies, carriages and cases for all kinds of stairs and steps, together with illustrations showing the manner of laying out stairs, forming treads and risers, building cylinders, preparing strings; carriages for common platform, dog-leg and winding stairs; also the method of setting out stairs, laying out strings, plans of stairs, pitch-boards, construction of steps, line of nosings, housing strings, placing balusters, finishing ends of wall strings, trimmers and joists, lower newel finish, well hole finish, straight platform stairs, planning stairs, dog-leg stairs, close string stairs, continuous stairs, geometrical stairs, carriages of stairs, story rod, dancing the treads, double platform stairs, straight flights and winders, solid newels, all winders, etc., etc.

This work takes hold at the very beginning of the subject, and carries the student along by easy stages until the entire subject of Stair Building has been unfolded, so far as ordinary practice can ever require.

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Our big portfolio book contains 72 pages of information of great value to everyone considering installing a heating plant in a new or old home. It is prepared from the experience gained through 25 years of contracting, manufacturing and designing heating plants for all classes of buildings from modest cottages to the largest public and private buildings. It shows in detail and with fine Illustrations what we have done on these various kinds of jobs, some one of which may be similar to yours.

From It You Learn

how we cut, thread and ream all pipes to fit perfectly; how fittings, radiators, boiler, etc., are made ready; how all parts are tagged and crated ready for shipment, and how our instructions are made so simple and clear that any handy man can set up the plant.

Two styles of steel boilers as well as cast iron boilers are described and illustrated, and their large amount of heating surface is shown. The kind of grate which experience has shown to be the best as well as styles of ornamental radiators for various uses, are fully described. You can easily understand the fuel economy of these boilers after studying their construction and the diagram which show what fuel saving means to you.

Regurgitating Safety Valve

Regurgitating Safety Valve
a wonderful device which makes the radiators 50% hotter in cold
weather, is explained. Stops "boiling over." An exclusive feature
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for this Big Book before buying any heater and send plans
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might become purchasers.



It is nearly as easy to install an Andrews Plant in an old house as in a new one. Just give us a rough sketch or architect's plans of your floors and basement, showing sizes, windows, doors, height of ceilings, etc., and our engineers will figure out the exact cost of a plant to give best efficiency under your particular conditions.

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This is the simplest temperature regulator on the market. A small, very neat Thermostatic Thermometer in the living room governs a basement motor which in turn opens and closes the dampers at changes in temperature. Saves fuel and all the bother of fussing with dampers. Only \$20 direct. Guaranteed for Life.

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Andrews Steel Boilers
Andrews Steel Boilers
The two styles of Andrews
Steel Boilers, vertical (shown in cut in center of ad.) and locomotive, are the highest types of hot-water boilers. They are made of steel-plate like power boilers and their very large fire travel to-gether with the close proximity of fire and water make them heat quicker than any other boilers on much less fuel. A child can clean either style in a few minutes. Average annual

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Plumbing

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The Andrews Plumbing
line is complete of
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cut to fit, threaded, etc., so that any handy man
can easily erect. Write for estimate. mate.

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Good for \$5.00

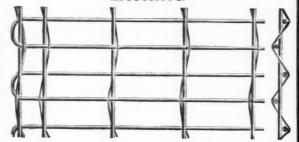
To check up the people who buy from this ad., it will be a few minutes. Average annual cost of coal \$3.00 to \$5.00 per room. Our catalog also shows cast Iron boilers.

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Andrews Heating Go., minneapolis, Minn., U.S.A.

WIRE LATHING

PATENT TRUSSED STEEL WIRE LATHING



ELIMINATES ONE-HALF OF INSTALLATION COST, owing to its Truss formation, which makes it possible to staple or nail it directly to stude or joists without furring.

It will take sharp corners without cutting, and has a sustaining power of three and one-half times greater than square mesh lathing of equal weight. IT EMBEDS ITSELF COMPLETELY in the mortar and is thus secured from the corrosive action of the atmosphere, and WILL NOT RUST. Another feature of this Wire Lathing is the fact that rust will not attack the smooth round wires, as it does the thin cut edges of the metal fabric. Walls or ceilings plastered on this lathing will never crack or drop off, the key being so firm.

firm. Send for our Booklet No. 6 AA on Wire Lathing for further information. We are also manufacturers of GRIMM'S CORRUGATED GALVANIZED WIRE LATHING.

BUFFALO WIRE WORKS CO.

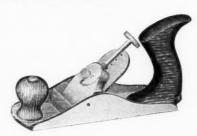
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NEW YORK OFFICE: 30 Church Street

Buckeye Iron Planes

The Buckeye Saw Vise Co., of Cleveland, Ohio, are placing on the market a new iron plane, making them in two sizes, Smooth Plane 91% inches long, 2-inch iron, and Fore Plane 18 inches long, 21/4-



The 18-inch or Fore Plane can be adjusted to do the work of Jack Plane and Jointer, without removing the plane from the work or the iron from the plane, as these planes have no extra cap plate, but only an adjusting plate that acts as cap plate and tension plate, and is fastened to the body of plane by a screw which goes through the tension or cap plate and into the sides of the plane. In adjusting the iron, the tension or cap plate does not move, thus causing a greater or less margin at the cutting edge of iron.

The mechanic has only to buy two of these planes against four of the old style, and has two planes less to carry in his tool chest, and also two less to keep in order. It is claimed that these planes positively will not clog, chatter, or tear out in the most difficult wood.

The adjustment is so quick, that only a slight turn of the screw is required to move the iron, and this is done with the tension off the iron. The large adusting screw has four actions, causing the iron to move forward or back, and to right or left to square the iron with the bottom of plane. The adustment of these planes is very simple, and there is nothing to get out of order.



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Write us for further information

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OLDS DIAPHRAGM PUMP

For pumping, excavations, cofferdams, trenches, etc.

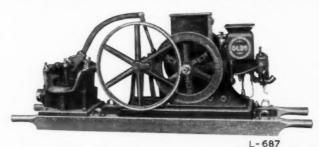
Handles 3000 gallons per hour on one pint gasoline.

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Engine can be removed and used for other purposes and easily replaced.

Construction the most durable possible.

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TAKES WATER ONLY IT WILL NOT CLOG

Nothing but water can enter the spout. It will not freeze and burst.

Assures users of clean cistern water. These Troughs are practical necessity.

We want a live agent in every locality. We have a very profitable proposition.

CASSENS MFG. CO. ANSENS IDEAL EAVES THOUGH



The New Shelby **Chief Floor Hinge**

Is the original Shelby Chief Double Acting Ball-Bearing Surface Floor Hinge, with

Surface Floor Hinge, with valuable improvements.

Notice in the sectional view the mechanical construction of this hinge. Also the deep beveled cover plates which cover all defects in notching the door, and gives an attractive finish to the door.

Ack us or your dealer to

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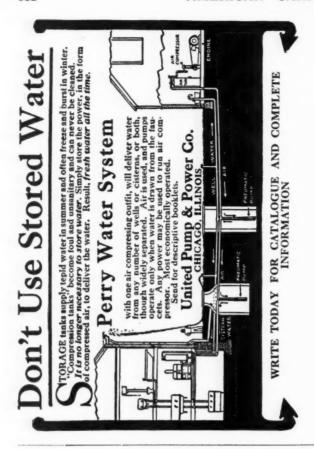
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We also manufacture Black, Galvanized and Painted Roofings, Tin Plate, Metal Lath, Prong Lock Studs and Furring, Metal Tile, Eaves Trough, Hangers, and Conductor Pipes, Brick and Stone Siding, etc.



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Double Headed Nails for Forms Scaffolding and other **Temporary Work**

The Economy Double Headed Nail illustrated herewith is manufactured by the F. A. Neider Company, Inc., Augusta, Kentucky.

Carpenters will readily appreciate that this nail is a labor and lumber saver. For concrete forms, staging and other temporary lumber construction these nails are invaluable; because: The second head has an area of four or five times as great as the ordinary nail. This means that these nails can be driven home and the boards drawn much more tightly together than is possible to do with the regular nail.

These nails can be withdrawn and used over many times. This feature alone brings their cost down to or even below the cost of ordinary nails; and the lumber saved is clear gain. When using the regular nail you spoil a lot of lumber. With these "Economy Double Headed Nails" it is claimed that there is absolutely no waste of lumber, hence a great saving is accomplished.



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Broad point for plaster walls, fine woodwork, etc. Sharp point for quirks and mould ngs. Will hold any shape pencil equally well. This scriber will hold framer's pencil, doing away with breaking of pencil point. Adapted for extra close scribing. Steel points can be moved up or down to suit pencil.

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Combines all features of No. 30 Scriber and No. 55 Stork's Beak.
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Nickel plated.

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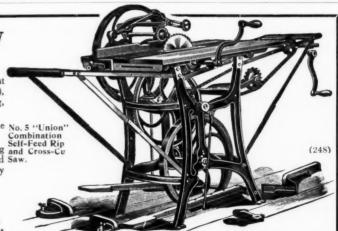
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The law requires that the booth be built of angle iron, the roof and floor, as well as the sides, to be covered with asbestos boards of a designated strength and thickness.

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C. J. S.

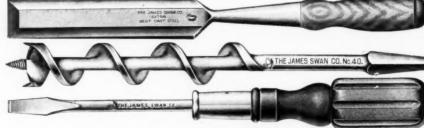


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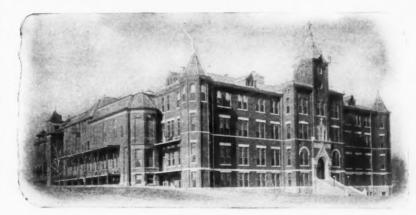
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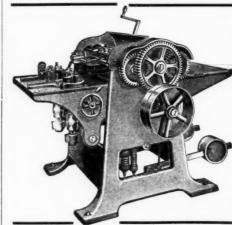
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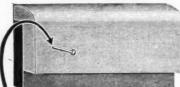
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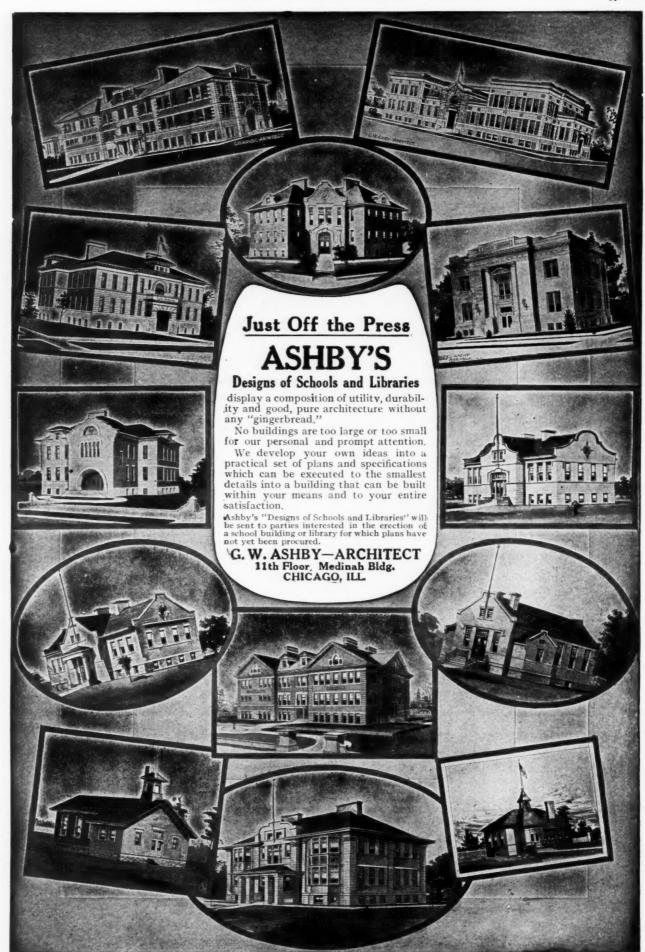
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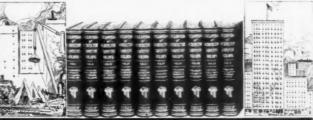


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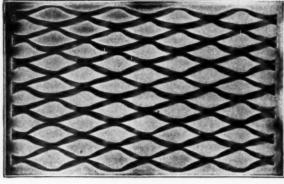
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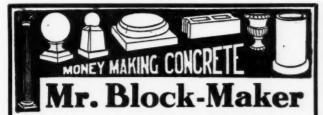
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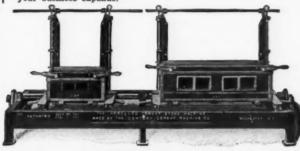
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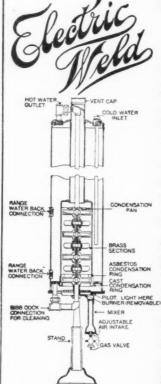
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